REVISION HISTORY BG3R CHASSIS

MODEL

KV-XA21M80

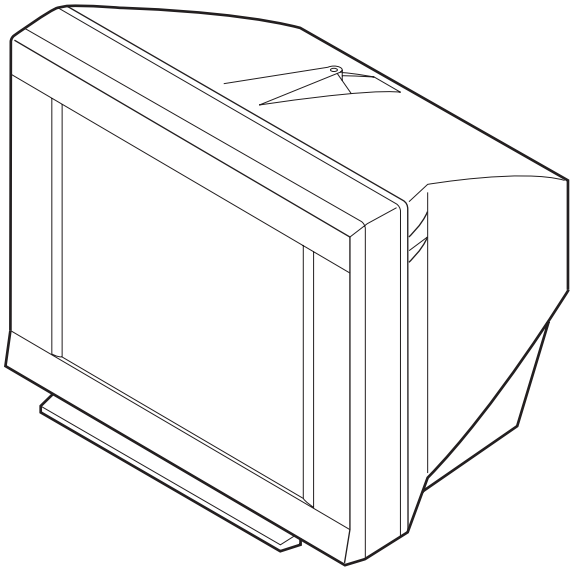
PART NO.: 9-872-283-01

NO.	SUFFIX	DATE	SUPPL. / CORR	DESCRIPTION
1	-01	2002/01	--	1st. Issue

Self Diagnosis
Supported model

SERVICE MANUAL BG3R CHASSIS

MODEL	COMMANDER	DEST.	CHASSIS NO.	MODEL	COMMANDER	DEST.	CHASSIS NO.
KV-XA21M80	RM-952	Vietnam	SCC-U56F-A				



TRINITRON® COLOR TV

SONY®

SPECIFICATIONS

			Note
Power requirements	110-240 V AC, 50/60 Hz		
Power consumption (W)	Indicated on the rear of the TV		
Television system	B/G, I, D/K, M		
Color system	PAL, PAL 60, SECAM, NTSC3.58, NTSC4.43		
Channel coverage			
B/G	VHF: E2 to E12 / UHF: E21 to E69 / CATV: S01 to S03, S1 to S41		
I	UHF: B21 to B68, CATV: S01 to S03, S1 to S41		
D/K	VHF: C1 to C12, R1 to R12 / UHF: C13 to C57, R21 to R60 / CATV: S01 to S03, S1 to S41, Z1 to Z39		
M	VHF: A2 to A13 / UHF: A14 to A79 / CATV: A-8 to A-2, A to W+4, W+6 to W+84		
(Antenna)	75-ohm external terminal		
Audio output (Speaker)	5W + 5W		
Number of terminal			
Video	Input: 2 Output: 1	Phono jacks; 1 V_{P-P}, 75 ohms	
Audio	Input: 2 Output: 1	Phono jacks; 500 mVrms	
(Headphone)	Output: 1	Stereo minijack	
Picture tube	21 in.		
Tube size (cm)	54		Measured diagonally
Screen size (cm)	51		Measured diagonally
Dimension (w/h/d, mm)	620 x 452 x 496		
Mass (kg)	26		

Design and specifications are subject to change without notice.

CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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SELF DIAGNOSTIC FUNCTION

The units in this manual contain a self-diagnostic function. If an error occurs, the STANDBY/TIMER lamp will automatically begin to flash.
The number of times the lamp flashes translates to a probable source of the problem. A definition of the STANDBY/TIMER lamp flash indicators is listed in the instruction manual for the user's knowledge and reference. If an error symptom cannot be reproduced, the remote commander can be used to review the failure occurrence data stored in memory to reveal past problems and how often these problems occur.

1. DIAGNOSTIC TEST INDICATORS

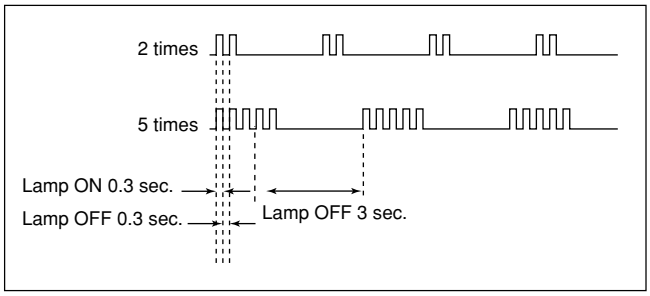
When an errors occurs, the STANDBY/TIMER lamp will flash a set number of times to indicate the possible cause of the problem. If there is more than one error, the lamp will identify the first of the problem areas.

Result for all of the following diagnostic items are displayed on screen. No error has occured if the screen displays a "0".

Diagnostic Item Description	No. of times STANDBY/TIMER lamp flashes	Self-diagnostic display/Diagnostic result	Probable Cause Location	Detected Symptoms
• Power does not turn on	Does not light	—	• Power cord is not plugged in. • Fuse is burned out F4601 (F)	• Power does not come on. • No power is supplied to the TV. • AC power supply is faulty.
• +B overcurrent (OCP) or overvoltage (OVP) • Vertical deflection stopped • Horizontal deflection overdrive	2 times	002:000 or 002:001~255 003:001~255 004:001~255 at the same time	• H.OUT Q511 is shorted. (A board) • IC700 is shorted (C1 board) • -13V is not supplied. (A board) • IC 503 faulty (A board)	• Power does not come on. • Load on power line is shorted. • Has entered standby state after horizontal raster. • Vertical deflection pulse is stopped. • Power line is shorted or power supply is stopped.
• White balance failure (no PICTURE)	5 times	005:000 or 005:001~225	• G2 is improperly adjusted. (Note 2) • CRT problem. • IC700 out is faulty (C1 board) • IC301 is faulty. (A board) • No connection A board to C1 board.	• No raster is generated. • CRT cathode current detection reference pulse output is small.
• Micro reset	—	101:00 or 101:001~225	• Discharge CRT (C1 Board) • Static discharge • External noise	• Power is shut down shortly, after this return back to normal. • Detect Micro latch up.

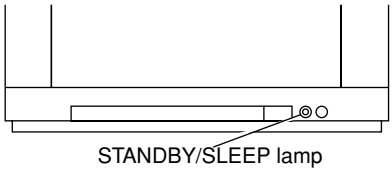
Note 1: If a + B overcurrent is detected, stoppage of the vertical deflection is detected simultaneously.
The symptom that is diagnosed first by the microcontroller is displayed on the screen.
Note 2: Refer to screen (G2) Adjustment in section 3-4 of this manual.
* IC700 out is faulty (C1 board).

2. DISPLAY OF STANDBY/TIMER LIGHT FLASH COUNT



Diagnostic Item	Flash Count*
+B overcurrent/overvoltage Vertical deflection stopped	2 times
White balance failure	5 times

* One flash count is not used for self-diagnostic.



3. STOPPING THE STANDBY/TIMER FLASH

Turn off the power switch on the TV main unit or unplug the power cord from the outlet to stop the STANDBY/TIMER lamp from flashing.

4. SELF-DIAGNOSTIC SCREEN DISPLAY

For errors with symptoms such as “power sometimes shuts off” or “screen sometimes goes out” that cannot be confirmed, it is possible to bring up past occurances of failure for confirmation on the screen:

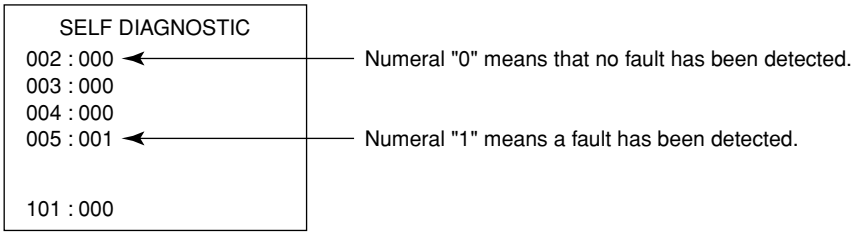
[To Bring Up Screen Test]
In standby mode, press buttons on the remote commander sequentially in rapid succession as shown below:

Screen display ➡ channel 5 ➡ Sound volume - ➡ Power ON

⇧

Note that this differs from entering the service mode (mode volume +).

Self-Diagnosis screen display


SELF DIAGNOSTIC
002 : 000
003 : 000
004 : 000
005 : 001
101 : 000
Numeral "0" means that no fault has been detected.
Numeral "1" means a fault has been detected.

5. HANDLING OF SELF-DIAGNOSTIC SCREEN DISPLAY

Since the diagnostic results displayed on the screen are not automatically cleared, always check the self-diagnostic screen during repairs. When you have completed the repairs, clear the result display to “0”.

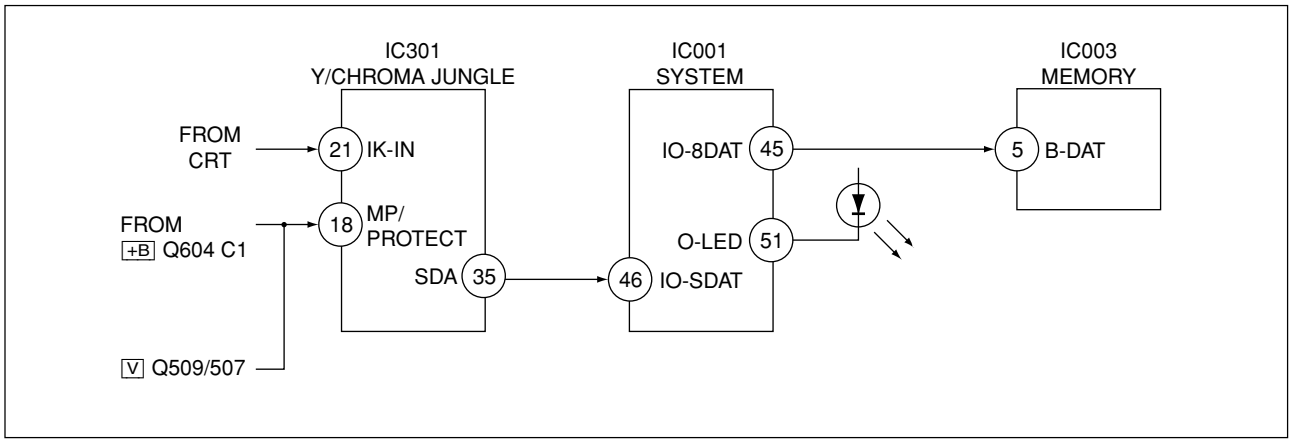
Unless the result display is cleared to “0”, the self-diagnostic function will not be able to detect subsequent faults after completion of the repairs.

[Clearing the result display]
To clear the result display to “0”, press buttons on the remote commander sequentially as shown below when the diagnostic screen is being displayed.

Channel [8] ➡ 0

[Quitting Self-diagnostic screen]
To quit the entire self-diagnostic screen, turn off the power switch on the remote commander or the main unit.

6. SELF-DIAGNOSTIC CIRCUIT

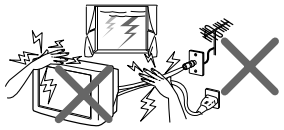


+B overcurrent (OCP)	Occurs when an overcurrent on the +B(135) line is detected by Q604. If Q604 go to ON and the voltage to pin 18 of IC301 should go down when V.SYNC is more than seven verticals in a period, the unit will automatically turn off.
Vertical deflection stopped	Occurs when an absence of the vertical deflection pulse is detected by Q509 and IC001 shut down the power supply.
Vertical deflection overcurrent	Occurs when an overcurrent on V drive line is detected by Q507. Power supply will be shut down when detect this by IC001.
White balance failure	If the RGB levels* do not balance or become low level within 5 seconds, this error will be detected by IC301. TV will stay on, but there will be no picture. * (Refers to the RGB levels of the AKB detection Ref pulse that detects IK.)

The operating instruction mentioned here are partial abstracts from the Operating Instruction Manual. The page numbers of the Operating Instruction Manual remain as in the manual.

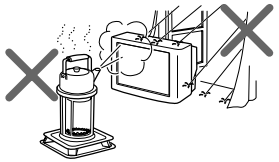
WARNING

- Dangerously high voltages are present inside the TV.
- Operate the TV only between 110 – 240 V AC.

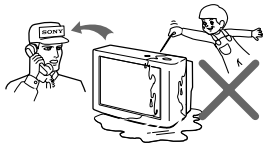


For your own safety, do not touch any part of the TV, the power cord and the antenna cable during lightning storms.

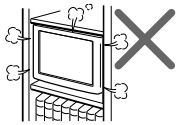
For children's safety, do not leave children alone with the TV. Do not allow children to climb onto it.



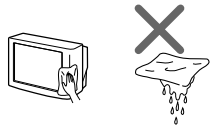
To prevent fire or shock hazard, do not expose the TV to rain or moisture.



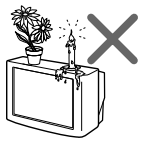
Do not operate the TV if any liquid or solid object falls into it. Have it checked immediately by qualified personnel only.



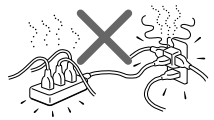
Do not block the ventilation openings of the TV. Do not install the TV in a confined space, such as a bookcase or built-in cabinet.



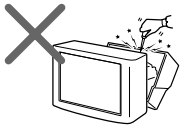
Clean the TV with a dry and soft cloth. Do not use benzine, thinner, or any other chemicals to clean the TV. Do not scratch the picture tube.



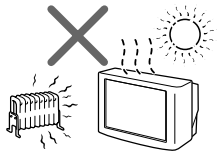
Do not place any objects on the TV.



Do not plug in too many appliances to the same power socket. Do not damage the power cord.



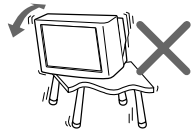
Do not open the cabinet and the rear cover of the TV as high voltages and other hazards are present inside the TV. Refer servicing and disposal of the TV to qualified personnel.



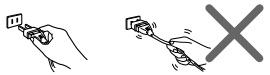
Your TV is recommended for home use only. Do not use the TV in any vehicle or where it may be subject to excessive dust, heat, moisture or vibrations.

SECTION 1
GENERAL

WARNING (continued)



Install the TV on a stable TV stand and floor which can support the TV set weight. Ensure that the TV stand surface is flat and its area is larger than the bottom area of the TV.



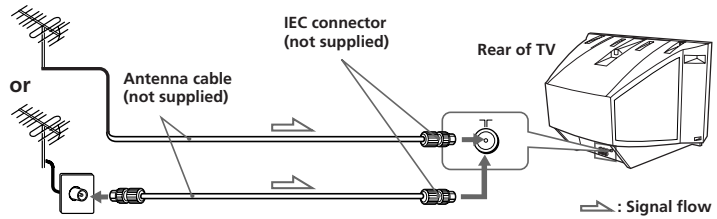
Pull the power cord out by the plug. Do not pull the power cord itself. Even if your TV is turned off, it is still connected to the AC power source (mains) as long as the power cord is plugged in. Unplug the TV before moving it or if you are not going to use it for several days.

Getting Started

Step 1

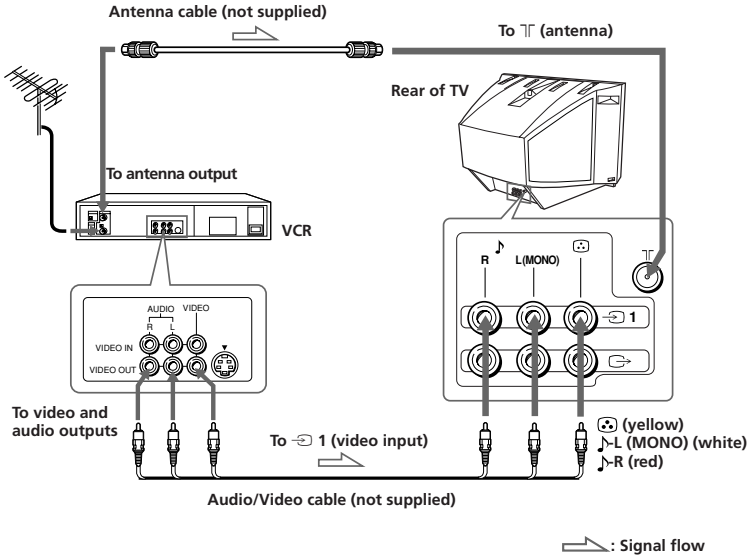
Connect the antenna

If you wish to connect a VCR, see the **Connecting a VCR** diagram below.



Connecting a VCR

To watch the video input, press ⊖ (see page 13).



Notes

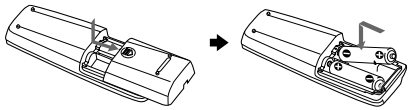
- If you connect a monaural VCR, connect the yellow plug to (the yellow jack) and the black plug to L (MONO) (the white jack).
- If you connect a VCR to the ⊤ (antenna) terminal, preset the signal output from the VCR to the program number 0 on the TV.
- When no signal is input from the connected video equipment, the TV screen becomes blue.

CAUTION

- Do not connect the power cord until you have completed making all other connections; otherwise a minimum leakage current might flow through the antenna and other terminals to ground.
- To avoid battery leakage and damage to the remote, remove the batteries from the remote if you are not going to use it for several days. If any liquid that leaks from the batteries touches you, immediately wash it away with water.

Step 2

Insert the batteries into the remote

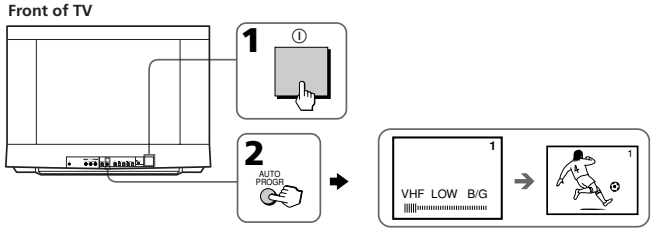


Note

- Do not use old batteries nor use different types of batteries together.

Step 3

Preset the channels automatically



Tips

- If you want to stop automatic channel presetting, press SELECT twice.
- If your TV has preset an unwanted channel or cannot preset a particular channel, then preset your TV manually (see page 10).

Note

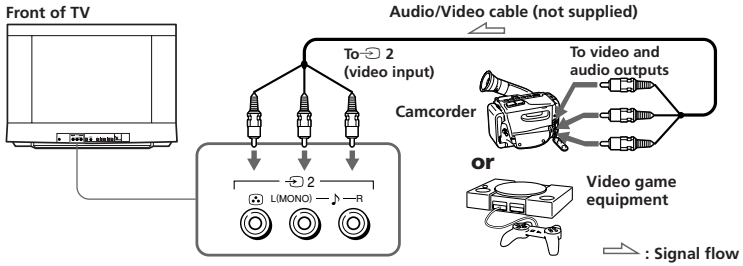
- During automatic channel presetting, your TV screen will indicate "B/G" , "I", "D/K" or "M" for the TV system.

Connecting optional components

You can connect optional audio/video components, such as a VCR, multi disc player, camcorder, video game or stereo system.

To watch the video input of the connected equipment, press ⊖ (see page 13).

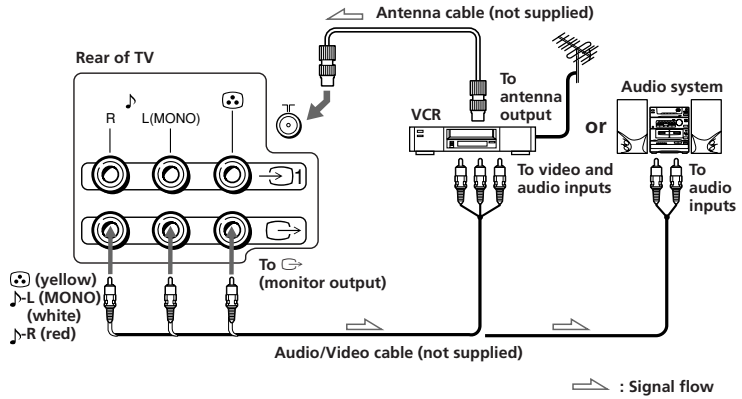
Connecting a camcorder/video game equipment using the ⊖ (video input) jacks



Note

- You can also connect video equipment to the ⊖ 1 (video input) jack at the rear of your TV.

Connecting audio/video equipment using the ⊖ (monitor output) jacks



Note

- If you connect a monaural VCR, connect the yellow plug to (the yellow jack) and the black plug to ♪-L (MONO) (the white jack).

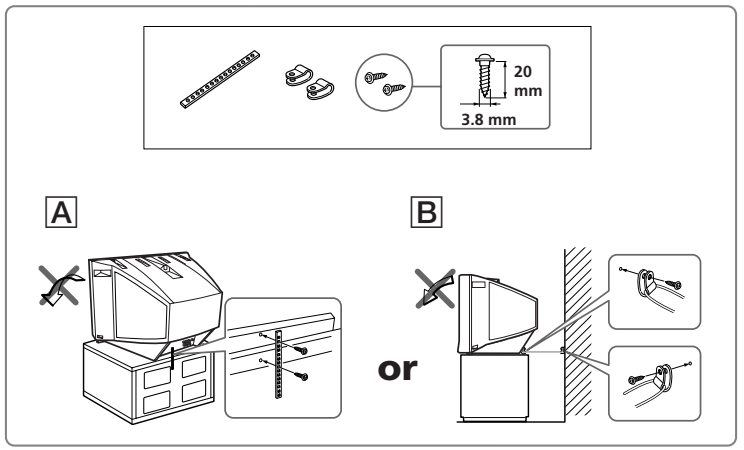
Securing the TV

To prevent the TV from falling, secure the TV using one of the following methods:

A With the supplied screws, attach the band to the TV stand and to the rear of the TV using the provided hole.

or

B Put the cord or chain through the clamps to secure the TV against a wall or pillar.



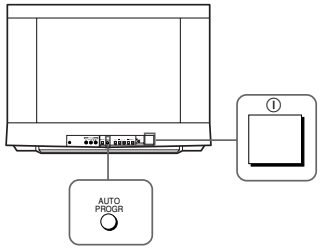
Note

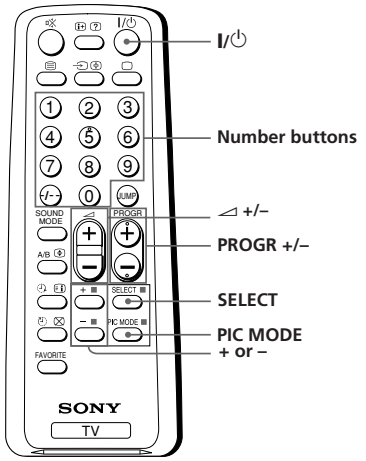
- Use only the supplied screws. Use of other screws may damage the TV.

KV-XA21M80
RM-952

Presetting channels

You can preset up to 100 TV channels in numerical sequence from program number 1 using the remote and the buttons on your TV as well.





Presetting channels automatically

1 Press ⏻ to turn on the TV.

2 Press AUTO PROGR.

Note

- During automatic channel presetting, your TV screen will indicate "B/G" , "I", "D/K" or "M" for the TV system.

To preset channels automatically from a specified program number

(1) Press SELECT until "AUTO PROGRAM" appears.

(2) Press + or –.
The on-screen display will start flashing.

(3) Press PROGR +/– or the number buttons until the desired program number appears.

(4) Press + or –.

continued

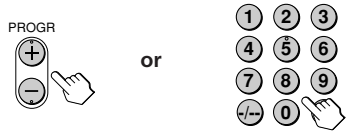
Presetting channels (continued)

Presetting channels manually

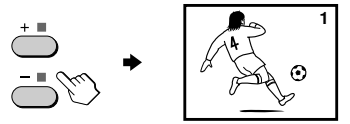
1 Press SELECT until "MANUAL PROGRAM" appears.

2 Press + or –.

3 Press PROGR +/– or the number buttons until the desired program number appears.



4 Press + or – until the desired channel picture appears.



5 Press SELECT.

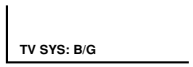
Note

- If you preset a locked program number, that particular program number will be unlock automatically (see page 18).

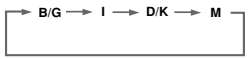
To change the TV system setting

If the picture or sound is abnormal when receiving programs through the ⅂ (antenna) terminal

(1) Press SELECT until "TV SYS" appears.



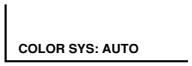
(2) Press + or – to select the appropriate TV system until the picture or sound quality is optimal.



To change the color system setting

If the color is abnormal when receiving programs through the ⊤ (antenna) terminal or the ⇥ (video input) jack.

(1) Press SELECT until "COLOR SYS" appears.



(2) Press + or – to select the appropriate color system until the color is optimal.

Tip

- Normally set "COLOR SYS" to "AUTO".

Skipping program numbers

1 Press PROGR +/– or the number buttons until the unused or unwanted program number appears.

2 Press SELECT until "MANUAL PROGRAM" appears.

3 Press + or –.

4 Press PIC MODE.

5 Press SELECT.

To restore the skipped program number again

Preset the channel automatically or manually.

Tip

- You can also use SELECT and ◿ +/– on the TV to preset channels and skip program numbers.

To use the fine tuning (FINE) function

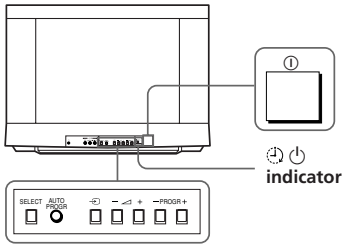
The fine tuning (FINE) function may help to reduce the following problems: double images and lines moving across the TV screen.

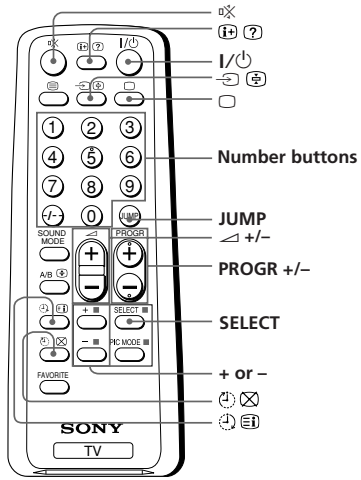
You can use the fine tuning function as below:

(1) Select the program number you want to adjust.
(2) Press SELECT until "MANUAL PROGRAM" appears on the screen.
(3) Press + or – on the remote control once.
(4) Press ⓘ to display "FINE" on the screen.
(5) Press + or – continuously until the above problems are minimized. The + or – icon on the screen flashes while tuning.
(6) Press SELECT to return to normal screen.

Watching the TV

This section explains functions used while watching the TV. Most operations can be done using the remote.



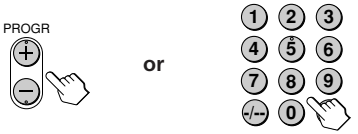


1 Press ⏻ to turn on the TV.

When the TV is in the standby mode (the ⏻ indicator on the TV is lit red), press I/⏻ on the remote or PROGR +/– on the TV.

2 Press PROGR +/– or the number buttons to select the program number.

For double digit numbers, press -/--, then the number (e.g., for 25, press -/--, then 2 and 5).



3 Press ◿ +/– to adjust the volume.

Additional tasks

To	Press
Turn off temporarily	I/⏻. The ⏻ indicator on the TV lights up red.
Turn off completely	⏻ on the TV.
Mute the sound	🔇.
Watch the video input (VCR, camcorder, etc.)	⏎ to select "VIDEO 1" or "VIDEO 2". To return to the TV program, press 🖵.
Jump back to the previous program number	JUMP.
Display the on-screen information*	ⓘ.
Adjust the volume of all program numbers automatically	SELECT repeatedly until "INTELLIGENT VOL" appears, then press + or – to select "ON". To cancel, select "OFF".
Adjust the picture position when it is not aligned to the TV screen	SELECT repeatedly until "PIC ROTATION" appears, then press + or – to adjust the alignment of the picture position. The ⤵⊞ or ⊟⤓ icon on the screen flashes while adjusting.

* The picture, sound, and either the program number or video input are displayed. The on-screen display for the picture and sound information disappears after about three seconds.

Changing the on-screen display language

1 Press SELECT until "LANGUAGE / 语言 : ENGLISH"appears on the screen.

2 Press + or – to select "中文".

Tip

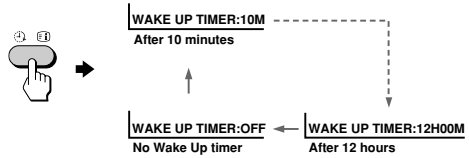
- You can also use SELECT and ◿ +/– on the TV to select the on-screen display language.

continued

Setting the Wake Up timer

1 Press ◴ until the desired period of time appears.

The Wake Up timer starts immediately after you have set it.



2 Select the program number or video input you want to display when you wake up.

3 Press I/⏻ or set the Sleep timer if you want the TV to turn off automatically.

The ◴ indicator on the TV lights up orange.

To cancel the Wake Up timer

Press ◴ until "WAKE UP TIMER: OFF" appears or turn off the TV's main power.

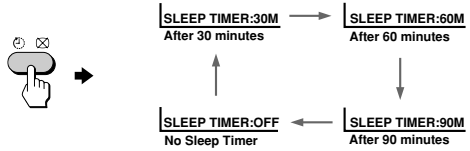
Note

- If no buttons or controls are pressed for more than two hours after the TV is turned on using the Wake Up timer, the TV automatically goes into the standby mode. To continue watching the TV, press any button or control on the TV or the remote.

Setting the Sleep timer

Press ◴ until the desired period of time appears.

The Sleep timer starts immediately after you have set it.



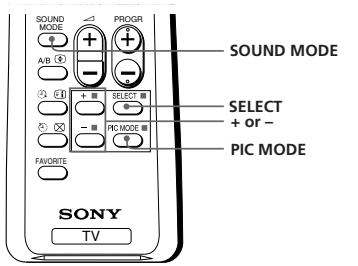
To cancel the Sleep timer

Press ◴ until "SLEEP TIMER: OFF" appears or turn the TV off.

Customizing the picture and sound

You can customize the picture and sound by selecting the picture and sound modes or by adjusting its settings.

You can change the sound effect by selecting the surround mode.



Selecting the picture and sound modes

To select the picture mode

Press PIC MODE repeatedly until you get the desired picture mode.

Select	To
"DYNAMIC"	view high contrast pictures.
"STANDARD"	view normal contrast pictures.
"SOFT"	view mild pictures.

To select the sound mode

Press SOUND MODE repeatedly until you get the desired sound mode.

Select	To
"DYNAMIC"	listen to dynamic and clear sound that emphasizes the low and high sound.
"DRAMA"	listen to sound that emphasizes vocals and background music.
"SOFT"	listen to soft sound.

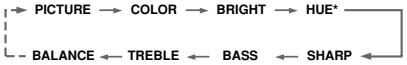
continued

Customizing the picture and sound (continued)

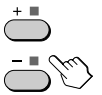
Adjusting the picture and sound settings

1 Press SELECT until the desired setting appears.

Each time you press SELECT, the setting item will change as follows:



2 Press + or – to adjust the item.



3 To adjust other items, repeat steps 1 to 2.

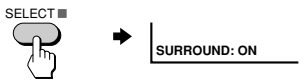
* "HUE" can be adjusted for the NTSC system only.

Notes

- When you select a picture or sound mode, the adjusted settings will be reset according to the selected mode.
- You can also use SELECT and ◿ +/– on the TV to adjust the picture and sound settings.

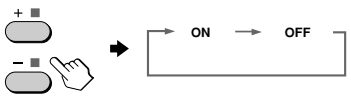
Selecting the surround mode

1 Press SELECT repeatedly until "SURROUND" appears.



2 Press + or – to select "ON".

To turn off the surround mode, select "OFF" .



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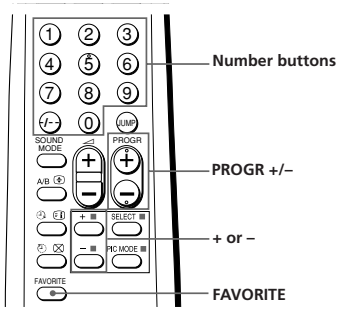
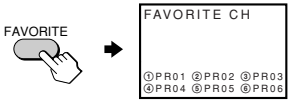
Viewing your favorite channels

You can display six of your favorite channels for quick and easy selection. You can program the favorite channel setting as well.



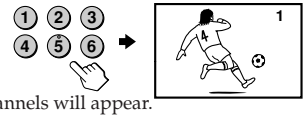
Selecting a favorite channel

1 Press FAVORITE.



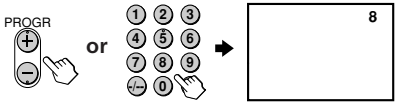
2 Press the number button from 1 to 6 to select the desired favorite channel.

When you use the "FAVORITE CH" feature for the first time, six preset favorite channels will appear.

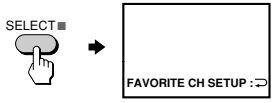


Programming the favorite channel

1 Press PROGR +/– or number buttons to select the program number you want to program (e.g., program number 8).



2 Press SELECT until "FAVORITE CH SETUP" appears.



3 Press + or – to select the favorite channel you want to program (e.g., ③).

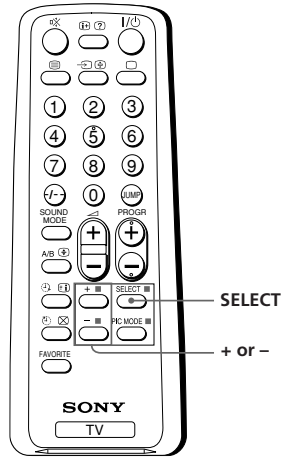
4 Press SELECT.

The selected favorite channel (e.g., ③) turns red for about one second.

5 To program other favorite channels, repeat steps 1 to 4.

Blocking the channels (CHILD LOCK)

You can lock some program numbers to prevent children from watching certain channels, by using the buttons on the remote control.



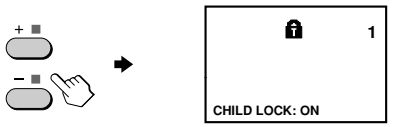
1 Select the program number you want to lock.

2 Press SELECT until "CHILD LOCK" appears on the screen.

3 Press + or – to select "ON".

The 🔒 symbol appears on the screen.

To cancel, press + or – to select "OFF". The 🔒 symbol disappears from the screen.

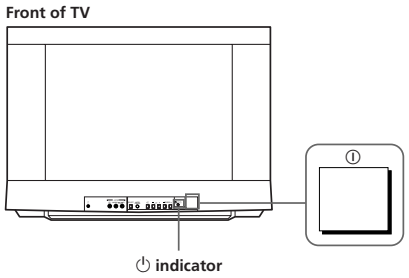


Note

- If you preset a locked program number, that particular program number will be unlocked automatically (see page 10).

Self-diagnosis function

Your TV is equipped with a self-diagnosis function. If there is a problem with your TV, the ⏻ indicator flashes red. The number of times the ⏻ indicator flashes indicates the possible causes.



1 Check that the ⏻ indicator flashes red a number of times between 3-second intervals.

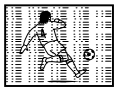
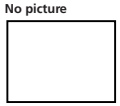
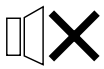
2 Count the number of times the ⏻ indicator flashes.

3 Press ⏻ (main power) to turn off your TV.

4 Inform your nearest Sony service center about the number of times the ⏻ indicator flashes.
Be sure to note the model name and serial number located on the rear of your TV.

Troubleshooting

If you find any problem while viewing your TV, please check the following guide.
If any problem persists, contact your Sony dealer.

Symptom	Possible cause	Solutions	Page
Snowy picture 	• Connection is loose or the cable is damaged.	• Check the antenna cable and connection on the TV, VCR and on the wall.	4
	• Channel presetting is inappropriate or incomplete.	• Press SELECT until "MANUAL PROGRAM" appears on the screen, then preset the channel again.	10
Noisy sound	• The antenna type is inappropriate.	• Check the antenna type (VHF/UHF). Contact a Sony dealer for advice.	–
	• The antenna direction is inappropriate.	• Adjust the antenna direction. Contact a Sony dealer for advice.	–
	• Signal transmission is low.	• Try using a booster.	–
Distorted picture Noisy sound	• Broadcast signals are too strong.	• Turn off or disconnect the booster if it is in use.	–
Good picture Noisy sound	• The TV system setting is inappropriate.	• If the sound of some channels are noisy, select the channel, then select the appropriate TV system (TV SYS).	10
No picture 	• The power cord, antenna or VCR is not connected.	• Check the power cord, antenna and the VCR connections.	4
	• The TV is not turned on.	• Press I/⏻ (power).	13
No sound 		• Press ⏻ (main power) on the TV to turn off the TV for about five seconds, then turn it on again.	12

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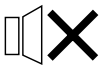
Symptom	Possible cause	Solutions	Page
Good picture **No sound** 	• The volume level is too low.	• Press + to increase the volume level.	12
	• The sound is muted.	• Press to cancel the muting.	13
Dotted lines or stripes 	• There is local interference from cars, neon signs, hair dryers, power generators, etc.	• Do not use a hair dryer or other equipment near the TV. • Adjust the antenna direction for minimum interference. Contact a Sony dealer for advice.	– –
Double images or "ghosts" 	• Broadcast signals are reflected by nearby mountains or buildings.	• Use a highly directional antenna. • Use the fine tuning (FINE) function.	– 11
	• The antenna direction is inappropriate.	• Adjust the antenna direction. Contact a Sony dealer for advice.	–
	• Use of a booster is inappropriate.	• Turn off or disconnect the booster if it is in use.	–
No color 	• The color level setting is too low.	• Press SELECT until "COLOR" appears on the screen, then press + or – to adjust the color level.	16
	• The color system setting is inappropriate.	• Press SELECT until "COLOR SYS " appears on the screen, then check the color system setting (usually set this to "AUTO").	11
	• The antenna direction is inappropriate.	• Adjust the antenna direction. Contact a Sony dealer for advice.	–
Abnormal color patches 	• The magnetic disturbance from external speakers or other equipment, or the direction of the earth's magnetic field may affect the TV.	• Keep external speakers or other electrical equipment away from the TV. Do not move the TV while the TV is turned on. Press ⏻ (main power) on the TV to turn off the TV for about 15 minutes, then turn it on again.	–

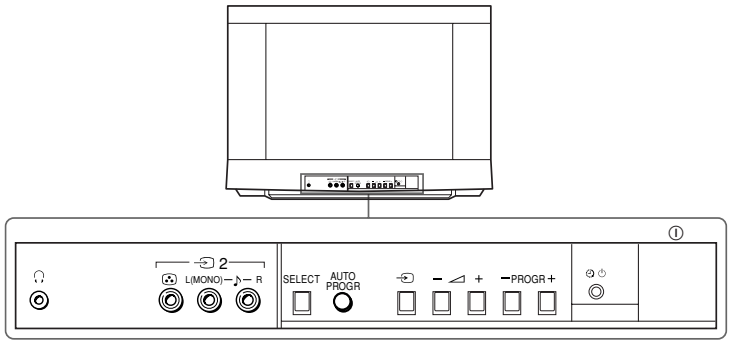
continued

Troubleshooting (continued)

Symptom	Possible cause	Solutions	Page
Picture slant 	• The magnetic disturbance from external speakers or other equipment, or the direction of the earth's magnetic field may affect the TV.	• Keep external speakers or other electrical equipment away from the TV. • Press SELECT until "PIC ROTATION" appears on the screen, then press + or – to adjust the picture until it is optimal.	– 13
Lines moving across the TV screen.	• There is interference from external sources, e.g., heavy machineries, nearby broadcast station.	• Use the fine tuning (FINE) function.	11
The ⏻ indicator on your TV flashes red a number of times between 3-second intervals.	• Your TV may need service.	• Contact your nearest Sony service center.	19
TV cabinet creaks.	• Changes in room temperature sometimes make the TV cabinet expand or contract, making a noise. This does not indicate a malfunction.	—	–
A "boom" sound is heard when the TV is turned on.	• The TV's demagnetizing function is working. This does not indicate a malfunction.	—	–

Overview of controls

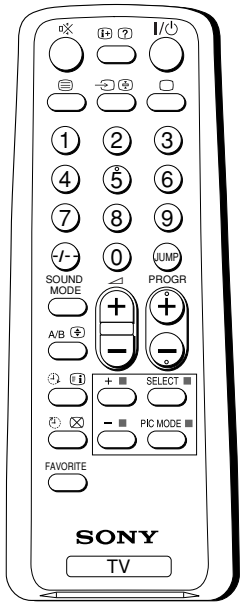
TV front panel



Button	Function	Page
AUTO PROGR	Preset channels automatically.	5
SELECT	Select the desired item.	11
PROGR +/–	Select program number.	12
⏻	Turn off completely or turn on the TV.	12
◿ +/–	Adjust volume.	12
⏻	Standby indicator.	12
⏎	Select TV or video input.	13
🕘	Wake Up indicator.	14
🎧	Headphone jack.	–

continued

Remote Control



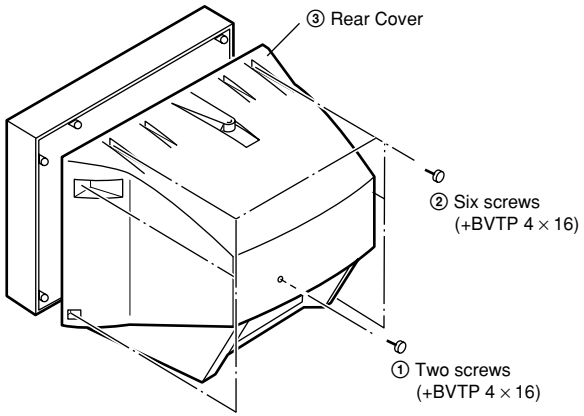
Button	Function	Page
SELECT	Select the desired item.	10
+/–	Adjust value.	10
PROGR +/–	Select program number.	12
0 – 9, -/--	Input numbers.	12
◿ +/–	Adjust volume.	12
⏻	Turn off temporarily or turn on the TV.	12
⏎	Select TV or video input.	13
▢	Display the TV program.	13
🔇	Mute the sound.	13
i+	Display on-screen information.	13
JUMP	Jump to previous program number.	13
Timer operations		
🕘	Set TV to turn on automatically.	14
🕘	Set TV to turn off automatically.	14
PIC MODE	Select picture mode.	15
SOUND MODE	Select sound mode.	15
FAVORITE	Display favorite channels.	17
Stereo/bilingual operations (Not used for KV-XA21M83/XA21M80)		
A/B	Select stereo/bilingual mode.	–
Teletext operations (Not used for KV-XA21M83/XA21M80)		
☰	Display Teletext broadcast.	–
i	Display Teletext service contents.	–
⊕	Stop Teletext display from scrolling.	–
?	Reveal concealed information.	–
⊕	Enlarge the Teletext display.	–
⊠	Show TV screen while waiting for Teletext page.	–
■ (red, green, yellow, blue)	Access a FASTEXT menu.	–

The names/symbols of buttons on the remote are indicated in different colors to represent the available functions.

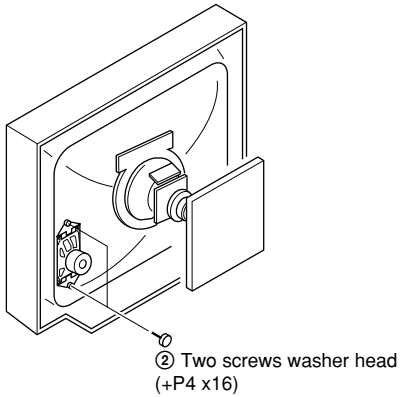
Label color	Button function
White	For general TV operations
Green	For Teletext operations

SECTION 2
DISASSEMBLY

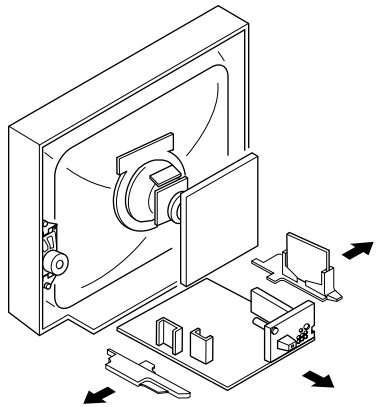
2-1. REAR COVER REMOVAL



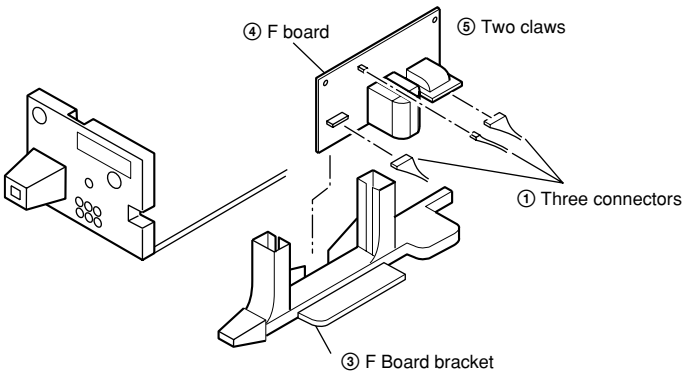
2-2. SPEAKER REMOVAL



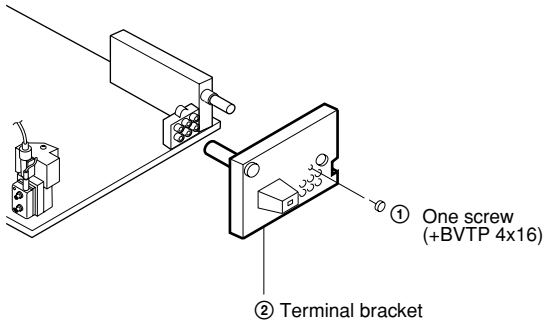
2-3. CHASSIS ASSY REMOVAL



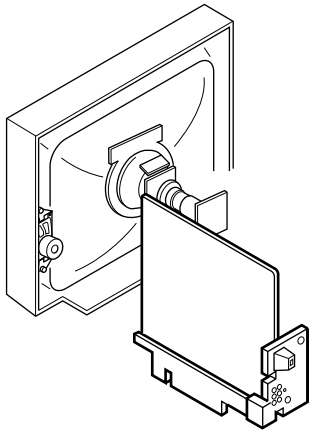
2-4. F BRACKET REMOVAL



2-5. TERMINAL BRACKET REMOVAL



2-6. SERVICE POSITION



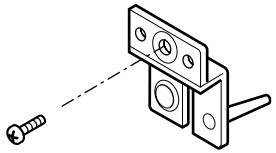
Note:

1. Undress necessary wires that creates tension while placing the chassis into Service Position.

2-7. REPLACEMENT OF PARTS

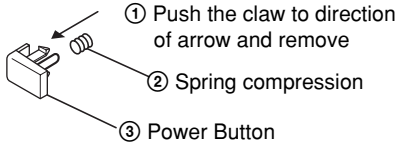
For replacement of light guide,unscrew them, exchange with new parts and fix them with screws respectively.

2-7-1. Replacement of Light Guide



One screw
(+BVTP 3 × 12)

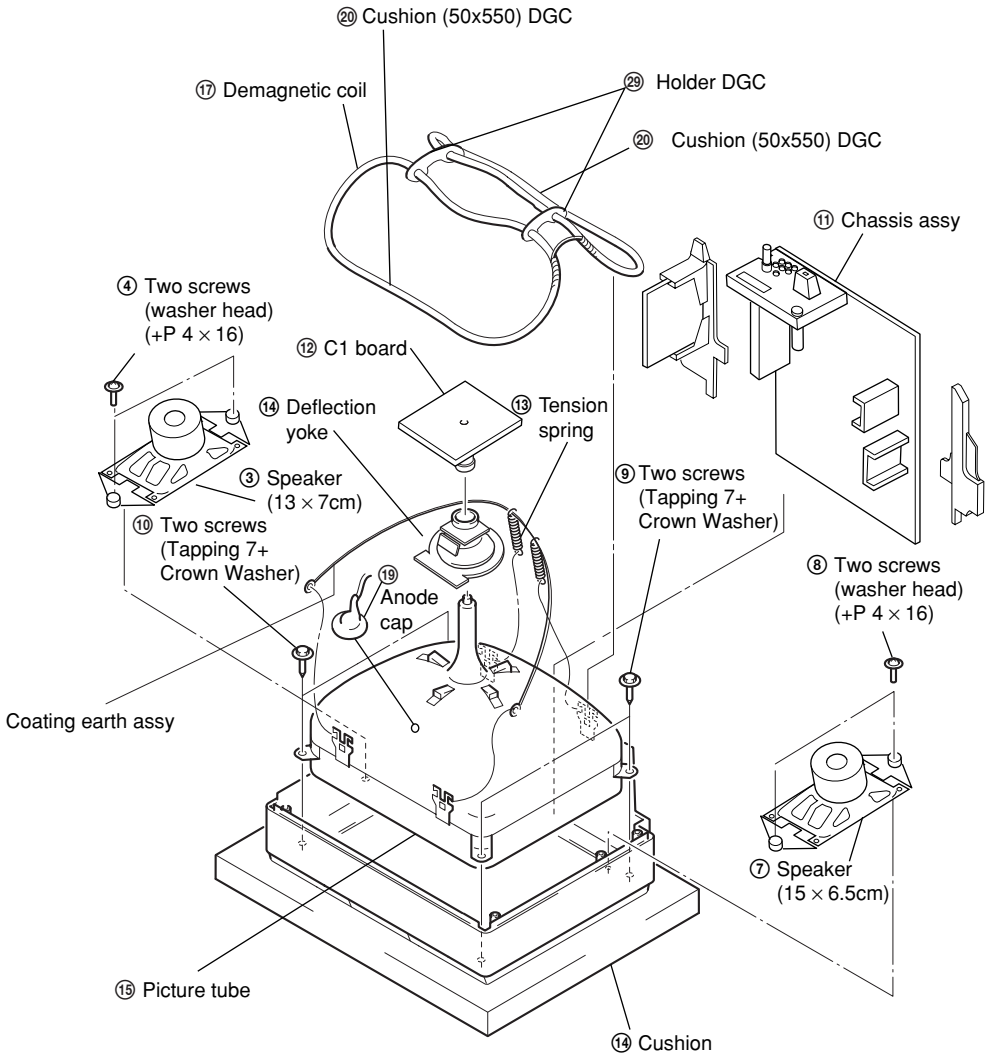
2-7-2. Replacement of Power Button



2-8. PICTURE TUBE REMOVAL

Note:

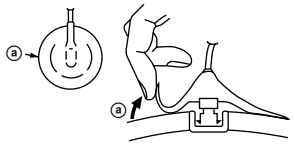
- Please remove necessary CRT support located on top left, top right, prior to removing the CRT.


⑳ Cushion (50x550) DGC
⑰ Demagnetic coil
㉙ Holder DGC
⑳ Cushion (50x550) DGC
⑪ Chassis assy
④ Two screws (washer head) (+P 4 × 16)
⑫ C1 board
⑭ Deflection yoke
⑬ Tension spring
③ Speaker (13 × 7cm)
⑨ Two screws (Tapping 7+ Crown Washer)
⑩ Two screws (Tapping 7+ Crown Washer)
⑲ Anode cap
⑧ Two screws (washer head) (+P 4 × 16)
Coating earth assy
⑦ Speaker (15 × 6.5cm)
⑮ Picture tube
⑭ Cushion

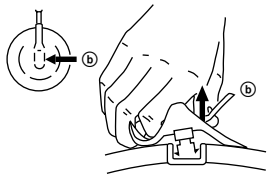
• REMOVAL OF ANODE-CAP

NOTE : After removing the anode, short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon paint on the CRT.

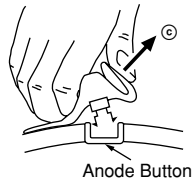
• REMOVING PROCEDURES



① **Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.**



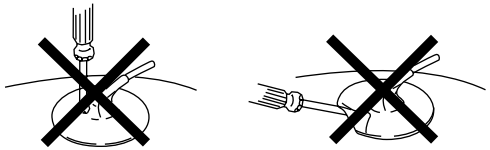
② **Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.**



③ **When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow ⓒ.**

• HOW TO HANDLE AN ANODE-CAP

① **Do not damage the surface of anode-caps with sharp shaped objects.**
② **Do not press the rubber too hard so as not to damage the inside of anode-cap. A metal fitting called the shatter-hook terminal is built into the rubber.**
③ **Do not turn the foot of rubber over too hard. The shatter-hook terminal will stick out or damage the rubber.**



SECTION 3
SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted.

Controls and switches should be set as follows unless otherwise noted:

PICTURE control ..... normal
BRIGHTNESS control ..... normal

Perform the adjustments in the following order :

1. Beam Landing
2. Convergence
3. Focus
4. White Balance

Note : Test Equipment Required.

1. Pattern Generator
2. Degausser
3. Oscilloscope

Preparation :

- In order to reduce the influence of geomagnetism on the set's picture tube, face it east or west.
- Switch on the set's power and degauss with the degausser.

3-1. BEAM LANDING

1. Input a white signal with the pattern generator.
   Contrast } normal
   Brightness }
2. Set the pattern generator raster signal to a green raster.
3. Move the deflection yoke to the rear and adjust with the purity control so that the green is at the center and the blue and the red take up equally sized areas on each side. (See Figures 3-1 through 3-4.)
4. Move the deflection yoke forward and adjust so that the entire screen is green. (See Figure 3-1.)
5. Switch the raster signal to blue, then to red and verify the condition.
6. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws and DY spacers.
7. If the beam does not land correctly in all the corners, use a magnet to adjust it. (See Figure 3-4.)

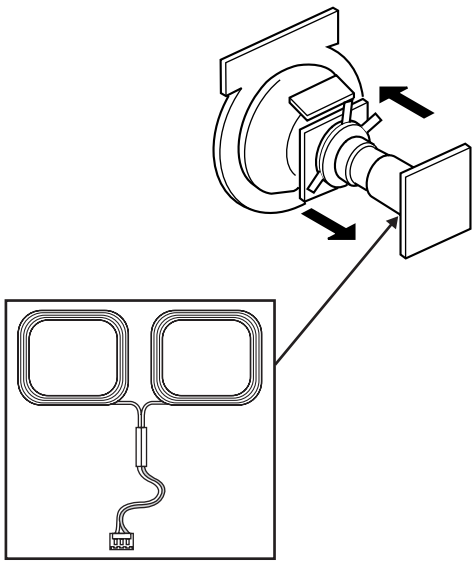


Fig. 3-1

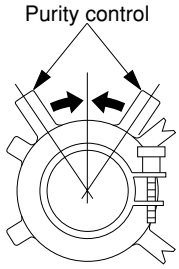


Fig. 3-2

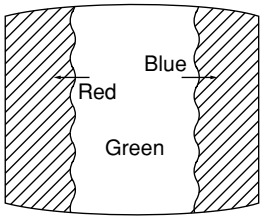


Fig. 3-3

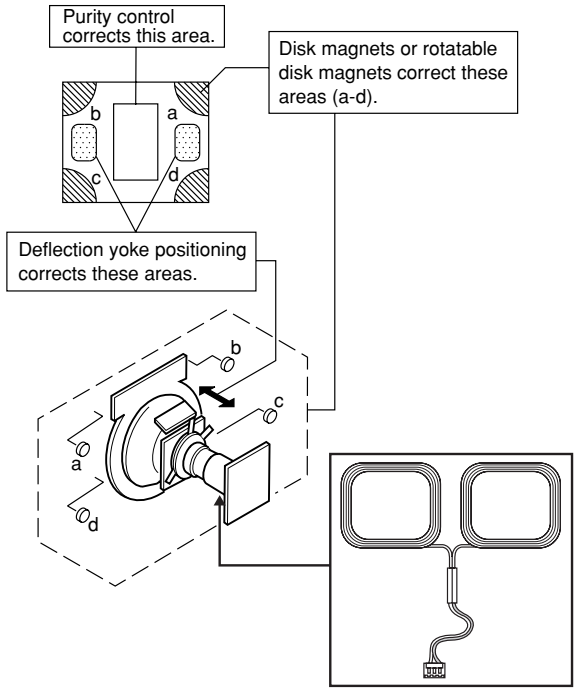


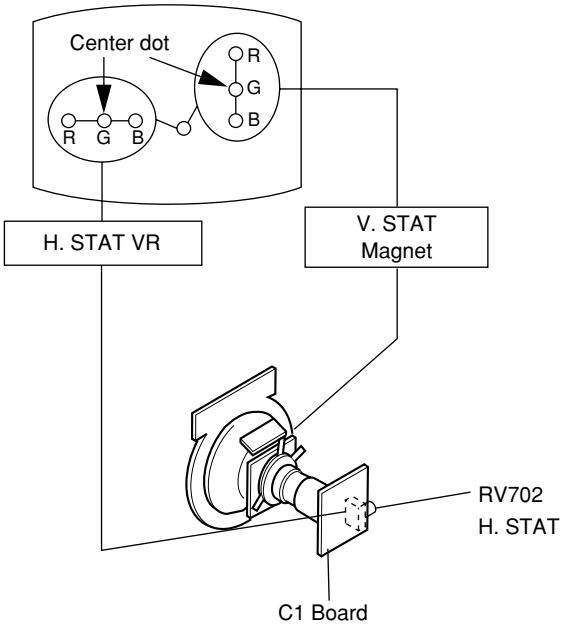
Fig. 3-4

3-2. CONVERGENCE

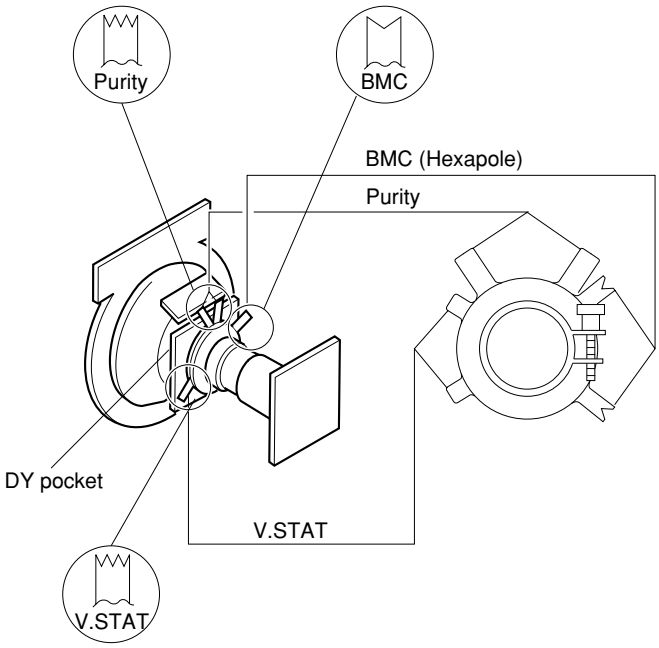
Preparation :

- Before starting this adjustment, adjust the focus, horizontal size and vertical size.
- Receive dot/hatch signal.
- Pic mode: Personal (Pic 90%, Brightness 50%, Col 50 %, Hue 50%, Shp 50%).

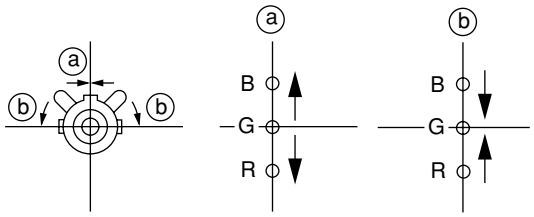
(1) Horizontal and Vertical Static Convergence



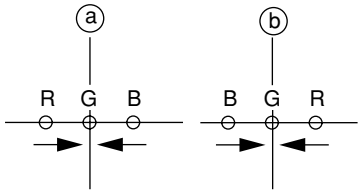
1. (Moving horizontally), adjust the H.STAT control so that the red, green and blue dots are on top of each other at the center of the screen.
2. (Moving vertically), adjust the V.STAT magnet so that the red, green and blue dots are on top of each other at the center of the screen.
3. If the H.STAT variable resistor cannot bring the red, green and blue dots together at the center of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V.STAT magnet in the manner given below.
   (In this case, the H.STAT variable resistor and the V.STAT magnet influence each other, so be sure to perform adjustments while tracking.)



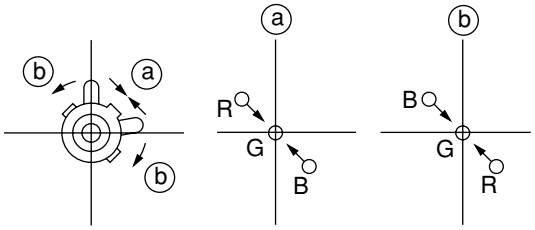
① V. STAT



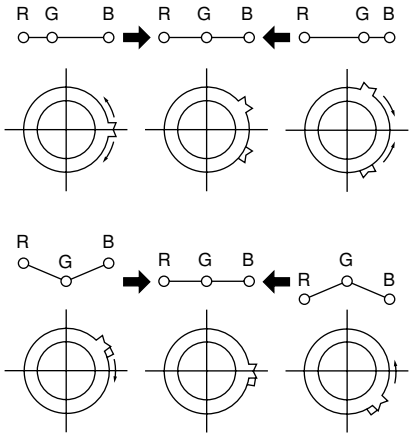
② H. STAT VR



③

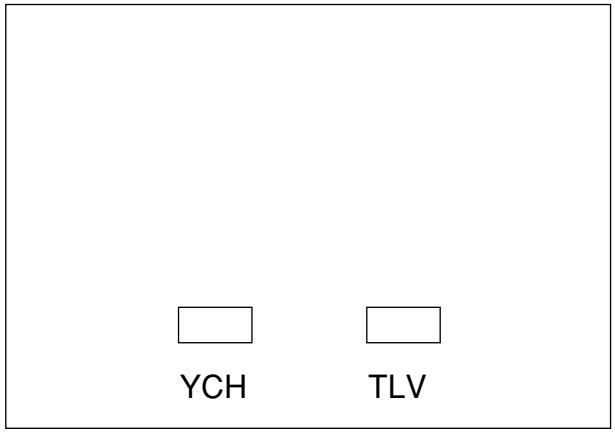


④ BMC (Hexapole) Magnet.
If the red, green and blue dots are not balanced or aligned, then use the BMC magnet to adjust in the manner described below.

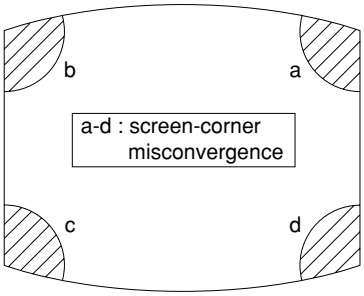


YCH	Rotate	YCH	VOL on DY
TLV	Insert	TLH	Correction Plate to DY Pocket (Left or Right)

ON DY:



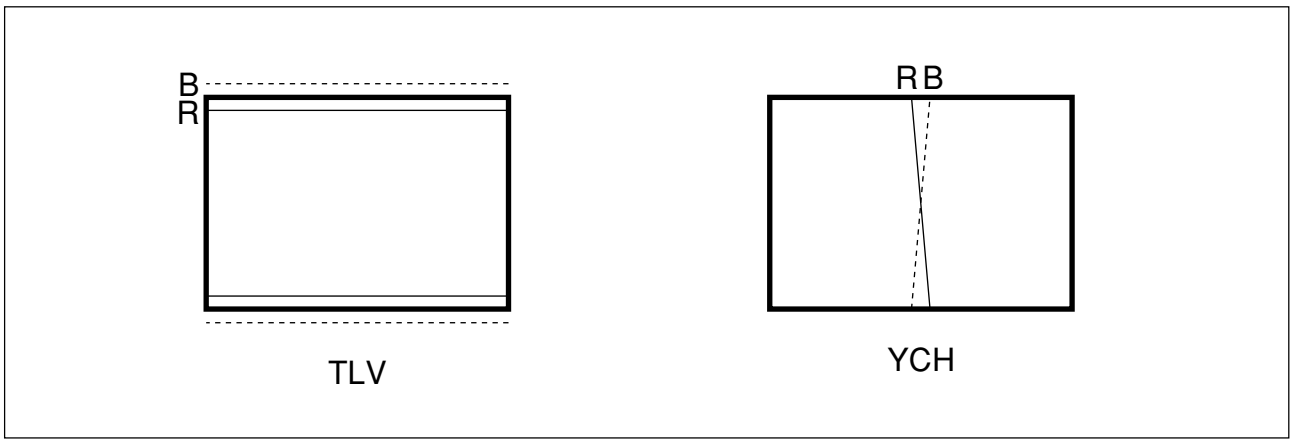
(3) Screen-corner Convergence



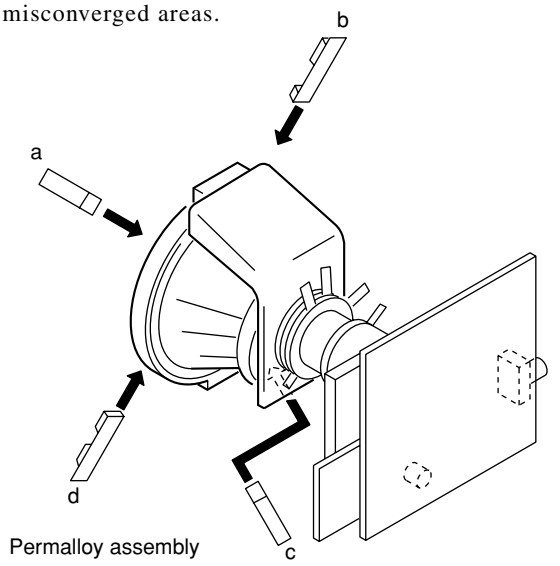
(2) Dynamic Convergence Adjustment

Preparation:

- Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence



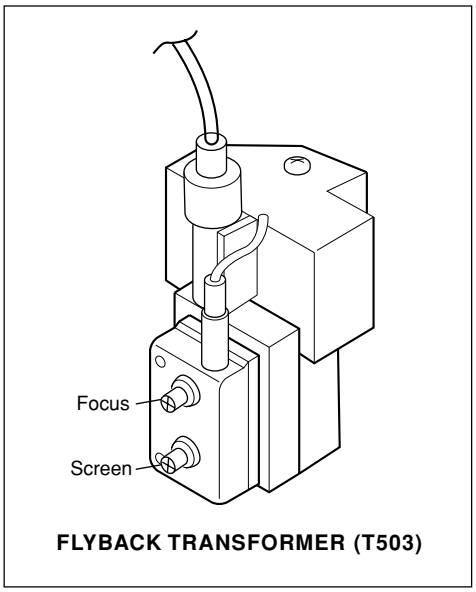
Fix a Permalloy assy corresponding to the misconverged areas.



3-3. FOCUS ADJUSTMENT

FOCUS adjustment should be completed before W/B adjustment.

1. Receive digital monoscope pattern.
2. Set "Picture Mode" to "DYNAMIC".
3. Adjust focus VR so that the center of screen becomes just focus.
4. Change the receiving signal to white pattern and blue back.
5. Confirm magenta ring is not noticeable. Incase magenta is very obvious, adjust focus VR to take balance of magenta ring and focus.

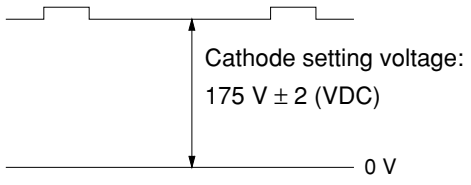


FLYBACK TRANSFORMER (T503)

3-4. G2 (SCREEN) AND WHITE BALANCE ADJUSTMENTS

1. G2 (SCREEN) ADJUSTMENT

1) Set the PICTURE to normal.
2) Put to VIDEO input mode without signals.
3) Connect R, G and B of the C1 board cathode to the oscilloscope.
4) Adjust BRIGHTNESS to obtain the cathode voltage to the value below.
5) Adjust G2 (screen) on the FBT until picture shows the point before cut off.

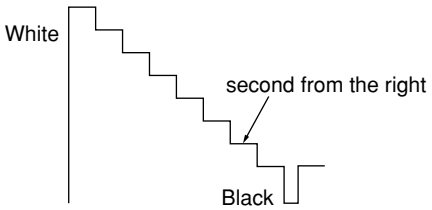


2. WHITE BALANCE ADJUSTMENT

1) Set to Service Mode (Refer Section 4-1: ADJUSTMENTS WITH COMMANDER).
2) Input white raster signal.
3) Set the PICTURE to minimum.
4) Select GCT (WHB 4) and BCT (WHB 5) with [1] and [4], and adjust the level with [3] and [6] for the best white balance.
5) Set the PICTURE to maximum.
6) Select GDR (WHB 1) and BDR (WHB 2) with [1] and [4], and adjust the level with [3] and [6] for the best white balance.
7) Write into the memory by pressing [MUTING] then [0].

3. SUB BRIGHT ADJUSTMENT

1) Set to service mode.
2) Input a staircase signal of black to white from the pattern generator.
3) BRIGHTNESS .... 50%.
   PICTURE ..... MINIMUM
4) Select SBR (WHB7) with [1] and [4], and adjust SBR (WHB7) level with [3] and [6] so that the second stripe from the right is dimly lit.



SECTION 4
CIRCUIT ADJUSTMENTS

4-1. ADJUSTMENTS WITH COMMANDER

Service adjustments to this model can be performed using the supplied Remote Commander RM-952

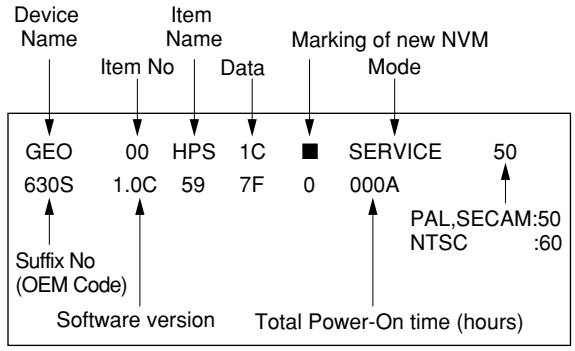
a. ENTERING SERVICE MODE

With the unit on standby

→ DISPLAY → 5 → VOL (+) → POWER

This operation sequence puts the unit into service mode.

The screen display is :



b. METHOD OF CANCELLATION FROM SERVICE MODE

Set the standby condition (Press POWER button on the commander), then press POWER button again, hereupon it becomes TV mode.

c. METHOD OF WRITE INTO MEMORY

1) Set to Service Mode.
2) Press 1 (UP) and 4 (DOWN), to select the adjustment.
4) Press MUTING button to indicate WRITE on the screen.
5) Press 0 button to write into memory.

d. MEMORY WRITE CONFIRMATION METHOD

1) After adjustment, pull out the plug from AC outlet, and then plug into AC outlet again.
2) Turn the power switch ON and set to Service Mode.
3) Call the adjusted items again to confirm adjustments were made.

1, 4	Select the adjustment item.
↓	
3, 6	Raise/lower the data value.
↓	
MUTING	Writes.
↓	
0	Executes the writing.

7, 0	All the data becomes the values in memory.
8, 0	All user control goes to the standard state.
5, 0	Service data initialization (Be sure not to use usually.)
2, 0	Write 50Hz adjustment data to 60Hz, or vice versa.

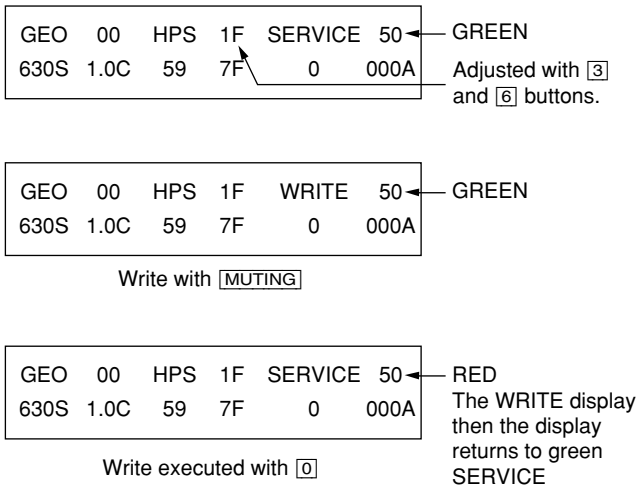
4-2. ADJUSTMENT METHOD

Item Number 00 of device GEO

This explanation uses H-Position as an example.

1. Select “GEO 00 HPS” with the 1 and 4 buttons.
2. Raise/lower the data with the 3 and 6 buttons.
3. Select the optimum state. (The standard is 1F for PAL reception.)
4. Write with the MUTING button. (The display changes to WRITE.)
5. Execute the writing with the 0 button. (The WRITE display will be changed to red color while excuting, and back to SERVICE.)

Example on screen display :-


GEO 00 HPS 1F SERVICE 50
630S 1.0C 59 7F 0 000A
GREEN
Adjusted with 3 and 6 buttons.
GEO 00 HPS 1F WRITE 50
630S 1.0C 59 7F 0 000A
GREEN
Write with MUTING
GEO 00 HPS 1F SERVICE 50
630S 1.0C 59 7F 0 000A
RED
The WRITE display then the display returns to green SERVICE
Write executed with 0

Use the same method for all Items. Use 1 and 4 to select the adjustment item, use 3 and 6 to adjust, write with MUTING, then execute the write with 0.

Note : 1. In WRITE, the data for all items are written into memory together.
2. For adjustment items that have different standard data between 50Hz or 60Hz, be sure to use the respective input signal after adjustment.

Adjustment Item Table

TVG	Functionality		Init.	Range	Function	Table & Note	Device Name
Category	No.	Name					
GEO	00	HPS	07	3F	H POSITION	50/60Hz	CXA2159S(88H)
	01	HSZ	1F	3F	H SIZE	50/60Hz	
	02	PAP	1F	3F	PIN AMP	50/60Hz	
	03	TLT	07	0F	TRAPEZIUM	50/60Hz	
	04	VPS	1F	3F	V POSITION	50/60Hz	
	05	VSZ	1F	3F	V SIZE	50/60Hz	
	06	SCO	07	0F	S CORRECTION	50/60Hz	
	07	VLN	07	0F	V LINEARITY	50/60Hz	
	08	BOW	07	0F	AFC BOW	50/60Hz	
	09	AGL	07	0F	AFC ANGLE	50/60Hz	
	0A	UPN	1F	3F	UPPER PIN	50/60Hz	
	0B	LPN	2F	3F	LOWER PIN	50/60Hz	
	0C	HBL	01	1	H BLANKING ON/OFF		
	0D	LBL	0F	0F	LEFT H BLANKING	50/60Hz	
	0E	RBL	02	0F	RIGHT H BLANKING	50/60Hz	
WHB	00	RDR	25/2A	3F	R DRIVE	DYNAMIC/others	CXA2159S(88H)
	01	GDR	25	3F	G DRIVE	DYNAMIC/others	
	02	BDR	25	3F	B DRIVE	DYNAMIC/others	
	03	RCT	07	0F	R CUTOFF	SECAM/others	
	04	GCT	07	0F	G CUTOFF	SECAM/others	
	05	BCT	07	0F	B CUTOFF	SECAM/others	
	06	BMN	15	1F	BRIGHTNESS MINIMUM DATA		
	07	SBR	1F	3F	SUB BIGHTNESS CONTROL		
	08	APB	00	3	SUB BRIGHT CTR SW FOT PNC #3		
SAJ	00	PMX	36	3F	PICTURE MAXIMUM DATA		CXA2159S(88H)
	01	SHU	08	0F	SUB HUE CONTROL	TV/Video	
	02	SSH	05/08	0F	SUB SHARPNESS CONTROL	TV/Video	
	03	SCL	1F	3F	SUB COLOR CONTROL	NTSC/others	
VP	00	EHT	05	0F	EHT COMP	50/60Hz	CXA2159S(88H)
	01	GMA	02	03	GAMMA CORRECTION	Refer NVM Map A4	
	02	APG	00	1	GAMMA CONTROL SWITCH FOR PNC #3		
	03	YDL	06/9/8	0F	Y DELAY	PAL/SECAM/NTSC	
	04	SST	01	03	SECAM ID START POSITION	SECAM/PAL	
	05	SSP	01	03	SECAM ID STOP POSITION	SECAM/PAL	
	06	RLM	00	3	RGB LIMIT		

Adjustment Item Table

TVG	Functionality		Init.	Range	Function	Table & Note	Device Name
Category	No.	Name					
VP	07	SLV	02	03	SECAM ID LEVEL	SECAM/PAL	CXA2159S(88H)
	08	SBF	22	3F	SECAM BELL FO	SECAM/PAL	
	09	DYC	01	1	DYNAMIC COLOR ON/OFF		
	0A	ABL	01	1	ABL MODE SWITCHING	STANDARD Always 0	
	0B	VTH	01	1	ABL DETECTION VTH SWITCHING		
	0C	SFO	01	1	FO SWITCHING FOR SHARPNESS	NTSC/others	
	0D	DCX	01	1	DC TRANS. RATIO SWITCHING		
	0E	SHT	01	1	PRE-/OVERSHOOT RATIO SWITCH	NTSC/others	
	0F	HDW	00	1	H DRIVE PULSE WIDTH SWITCH		
	10	AFC	01/0/01	03	AFC GAIN CONTROL	TV/Video/Text	
	11	HOS	07	0F	H OSCILLATION		
	12	HSS	00	1	SLICE LEVEL OF H SYNC SEP.		
	13	VSS	00	1	SLICE LEVEL OF V SYNC SEP.		
	14	HMS	01	1	MACRO VISION C/M OFF/ON	50/60Hz	
	15	YUV	01	1	YUV SWITCH CONTROL		
	16	CDV	01	3	CD MODE FOR VIDEO AND RF UNDER NO SIGNAL	video only	
	17	RON	01	1	R ON	not memorized	
	18	GON	01	1	G ON	not memorized	
	19	BON	01	1	B ON	not memorized	
	1A	PON	01	1	P ON	not memorized	
	1B	AXN	01	1	AXIS SW	NTSC/others (only for DYNAMIC)	
	1C	RSL	00	1	RGB SEL		
	1D	VBW	01	3	VBLKW		
	1E	RFP	00	1	REFP		
	1F	JMP	00	1	JUMP		
	20	VMC	00	3	VM OFF		
AP	00	INF	05	3F	INPUT ATTENUATION WHEN SURROUND OFF		BH3868AFS(80H)
	01	INS	0A	3F	INPUT ATTENUATION WHEN SURROUND ON (XG-ONLY)		
	02	SEF	00	0F	SURROUND EFFECT CONTROL (XA-ONLY)		
	03	PH1	03	3	PHASE 1 REGISTER SELECTION		
	04	PH2	00	3	PHASE 2 REGISTER SELECTION (XG-ONLY)		
	05	PH3	00	3	PHASE 3 REGISTER SELECTION (XG-ONLY)		
	06	PH4	00	3	PHASE 4 REGISTER SELECTION (XG-ONLY)		
	07	BCS	02	3	BASS CENTER SHIFT		
	08	TCS	02	3	TREBLE CENTER SHIFT		
	09	TRF	02	3	RF TREBLE OFFSET		
MSP	00	WST	15	FF	W/G STEREO THRESHOLD		MSP3415D(84H)
	01	WBT	EC	FF	W/G BILINGUAL THRESHOLD		
	02	WLL	05	FF	W/G MONAURAL THRESHOLD		
	03	WAC	01	0F	W/G AGREEMENT COUNT		
	04	WDL	30	FF	W/G SEARCH DELAY		
	05	NDL	20	FF	NICAM SEARCH DELAY		
	06	SDL	10	FF	STEREO STATUS READ DELAY		

Adjustment Item Table

TVG	Functionality		Init.	Range	Function	Table & Note	Device Name
Category	No.	Name					
	07	AGC	01	1	AGC SWITCH AUTO/CONSTANT		
	08	REL	28	3F	AGC GAIN AT CONSTANT MODE		
	09	CRM	00	1	CARRIER MUTING ON/OFF		
	0A	ACO	01	1	AUDIO CLOCK OUT ON/OFF		
	0B	FP	1B	7F	FM PRESCALE FOR NON-M SYSTEM		
	0C	FPM	32	7F	FM PRESCALE FOR M SYSTEM		
	0D	FH	36	7F	FM PRESCALE FOR HDEV		
	0E	FHM	65	7F	FM PRESCALE FOR HDEV AND M		
	0F	WGP	1C	7F	W/G PRESCALE		
	10	NIP	7F	7F	NICAM PRESCALE		
	11	ERR	50	FF	AUTO FM SWITCH THRESHOLD		
	12	VOL	6D	FF	LOUD SPEAKER GAIN 7000H TO 7FF0H		
TXT	00	TXH	01	3	TELETEXT HORIZONTAL POSITION		SAA5261
	01	TXV	00	3	TELETEXT VERTICAL POSITION		
OPM	00	OSH	11	3F	OSD H POSITION	Option-Misc	
	01	COM	01	03	COMB SELECTION		
	02	APC	01	1	APC SWITCH		
	03	TSY	00	03	TV SYS AT AUTO TV SYS		
	04	MUT	00	1	NO SIGNAL MUTE		
	05	AFM	01	1	AUTO FM SWITCH		
	06	RFB	00	3	C-BPF CONTROL		
	07	TVO	02	7	TILT TO V-ANGLE OFFSET		
	08	DBL	00	1	DISABLE BLUEBACK FUNCTION		
OPB	00	OP1	#	FF	OPTIONAL BITS 1 (refer specified page)	Option-Misc	
	01	OP2	#	FF	OPTIONAL BITS 2 (refer specified page)		
	02	OP3	#	FF	OPTIONAL BITS 3 (refer specified page)		
	03	OP4	#	FF	OPTIONAL BITS 4 (refer specified page)		

NOTE

- shaded items are fixed data.
- Standard data listed on the Adjustment Item Table are reference values, therefore it may be different for each model and for each mode.
- Note for Different Data Those are the standard data values written on the microprocessor. Therefore, the data values of the modes and stored respectively in the memory. In case of a device replacement, adjustment by rewriting the data value is necessary for some items.

ITEM INFORMATION

No. OPB0 OP1

Item	XTAL 4.43	XTAL 3.58	SECAM	2nd. Lang	B/G	I	D/K	M
KV-XA21M80	1	1	1	1	1	1	1	1

No. OPB1 OP2

Item	TOP	NICAM	HDEV	Thai Bil	Dis Fav.	DVD Input	AV Input	
KV-XA21M80	0	0	0	0	0	0	1	0

AV Input	00 = no AV Input 01 = 1 AV Input 10 = 2 AV Input 11 = 3 AV Input
DVD Input	Effective only when "AV Input" is set to 3 AV Input
Dis Fav.	Disable Favorite Channel (Effective For XF-L (21" & 14") Models Only)

No. OPB2 OP3

Item	PIC Rotate	2199 Curve	Auto PIC	Auto TV sys	US ST	AV Mono	11 KEY	Colour SW
KV-XA21M80	1	0	1	0	0	0	0	1

PIC Rotate	PIC Rotation Switch	0 = disabled,	1 = enabled
2199 Curve	2199 volume Curve Selection	0 = Others,	1 = 2199 Volume Curve.
Auto PIC	Auto Picture Improvement	0 = off	1 = activate
A-TVsys	Auto TV System in Auto Program	0 = disabled,	1 = enabled
US ST	USA Stereo	0 = disabled,	1 = enabled
AV MONO	AV Mono model	0 = Stereo,	1 = Mono (No Balance & Surround selection)
11 Key	Front Key Selection	0 = 7 key model,	1 = 11 key model
Color SW	Color Data Selection in Dynamic Mode	0 = 65 (No PIP),	1 = 57 (PIP)

No. OPB3 OP4

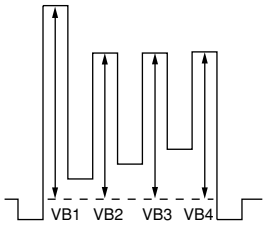
Item	–	–	–	–	–	–	AP_XG	_
KV-XA21M80	0	0	0	0	0	0	0	0

AP_XG	To select the XG AP (board B6)	0: No; 1 = Yes

4-3. PICTURE QUALITY ADJUSTMENTS

SUB COLOR ADJUSTMENT

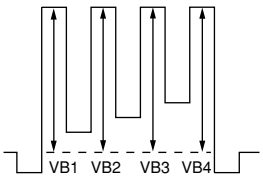
1. Select Video.
2. Input a PAL color-bar.
3. Set to the following condition:
   PICTURE 100%, BRIGHTNESS 50%, COLOR 50%
4. Connect an oscilloscope to pin ① (B OUT) of CN305, A board.
5. Set to Service Mode and select SAJ 'SCL' with [1] and [4] of the commander then adjust to VB2=VB3=VB4 with [3] and [6].
6. Press [MUTING] → [0] of the commander to write the data.
7. Adjust SAJ 'SCL' as step 3 to 5 when receiving NTSC color-bar.
8. Select the 'Wide' mode, write the 'same data-3 steps' for both PAL and NTSC input.



VB2 = VB3 = VB4

SUB HUE ADJUSTMENT

1. Select Video.
2. Input a NTSC 3.58 color-bar, into Video.
3. Set the following condition:
   PICTURE 100%, BRIGHTNESS 50%, COLOR 50%
4. Connect an oscilloscope to pin ① (B OUT) of CN305, A board.
5. Select SAJ O1 "SHU" with [1] and [4] of the commander by setting to Service Mode and adjust to VB1=VB2=VB3=VB4 with [3] and [6].



VB1 = VB2 = VB3 = VB4

6. Press [MUTING] → [0] of the commander to write the data.
7. Adjust SAJ O1 "SHU" as step 3 to 6 when receiving TV mode.

4-4. DEFLECTION ADJUSTMENT

NORMAL MODE (50Hz)

1. Set to Service Mode.
2. Using the [1] and [4] button, select category GEO (Service Mode).
3. Raise/lower the data using the [3] and [6] buttons.
   Select and adjust the following items to obtain optimum image.

Service Item

GEO :	00	HPS	H POSITION
	01	HSZ	H SIZE
	02	PAP	PIN AMP
	03	TLT	TRAPEZIUM
	04	VPS	V POSITION
	05	VSZ	V SIZE
	06	SCO	S CORRECTION
	07	VLN	V LINEARITY
	08	BOW	AFC BOW
	09	AGL	AFC ANGLE
	0A	UPN	UPPER CORNER PIN
	0B	LPN	LOWER CORNER PIN

NORMAL MODE (60Hz)

11. Input 525/60Hz signal.
12. Using the [1] and [4] buttons select category GEO (Service Mode).
13. Select and adjust the following items to obtain obtimum image.
    Raise/lower the data with the [3] and [6] buttons.

Service Item

GEO :	00	HPS	H POSITION
	01	HSZ	H SIZE
	02	PAP	PIN AMP
	03	TLT	TRAPEZIUM
	04	VPS	V POSITION
	05	VSZ	V SIZE
	06	SCO	S CORRECTION
	07	VLN	V LINEARITY
	08	BOW	AFC BOW
	09	AGL	AFC ANGLE
	0A	UPN	UPPER CORNER PIN
	0B	LPN	LOWER CORNER PIN

Note:

For Deflection Adjustment, set PICTURE MODE to "SOFT".

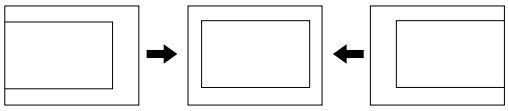
4-5. A BOARD ADJUSTMENT AFTER IC003 (MEMORY) REPLACEMENT

1. Enter to Service Mode.
2. Press commander buttons [5] and [0] (Data Initialize), and [2] and [0] (Data Copy) to initialize the data.
3. Call each item number and check if the respective screen shows the normal picture.
   In cases where items are not well adjusted, rectify the fine adjustment.
   Write the data per each item number ([MUTING] +[0]).
4. Select item numbers "OPB00" (OP1), "OPB01" (OP2), "OPB 02" (OP3) and "OPB 03" (OP4) respectively set the bit per model with command buttons [3] and [6].
5. Press commander buttons [8] and [0] (Test Normal) to return to the data that was set on the shipment from the factory.
   (This will also cancel Service Mode.)

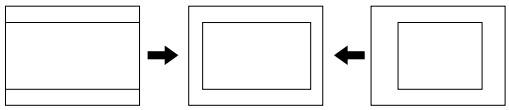
4-6. PICTURE DISTORTION ADJUSTMENT

Item Number 00 – 0B

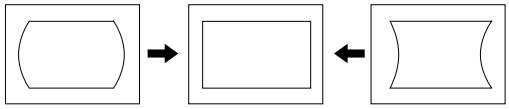
GEO 0 HPS (H POSITION)



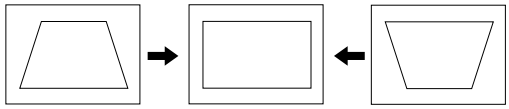
GEO 1 HSZ (H SIZE)



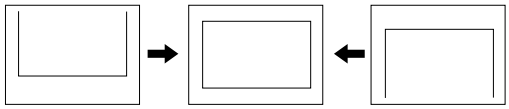
GEO 2 PAP (PIN AMP)



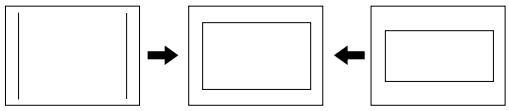
GEO 3 TLT (TRAPEZIUM)



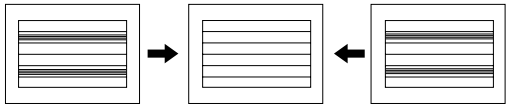
GEO 4 VPS (V POSITION)



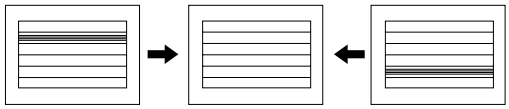
GEO 5 VSZ (V SIZE)



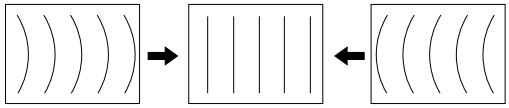
GEO 6 SCO (VERTICAL S-Correction)



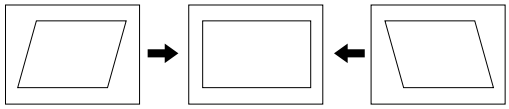
GEO 7 VLN (V LINEARITY)



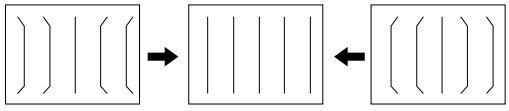
GEO 8 BOW (AFC.BOW)



GEO 9 AGL (AFC.ANGLE)

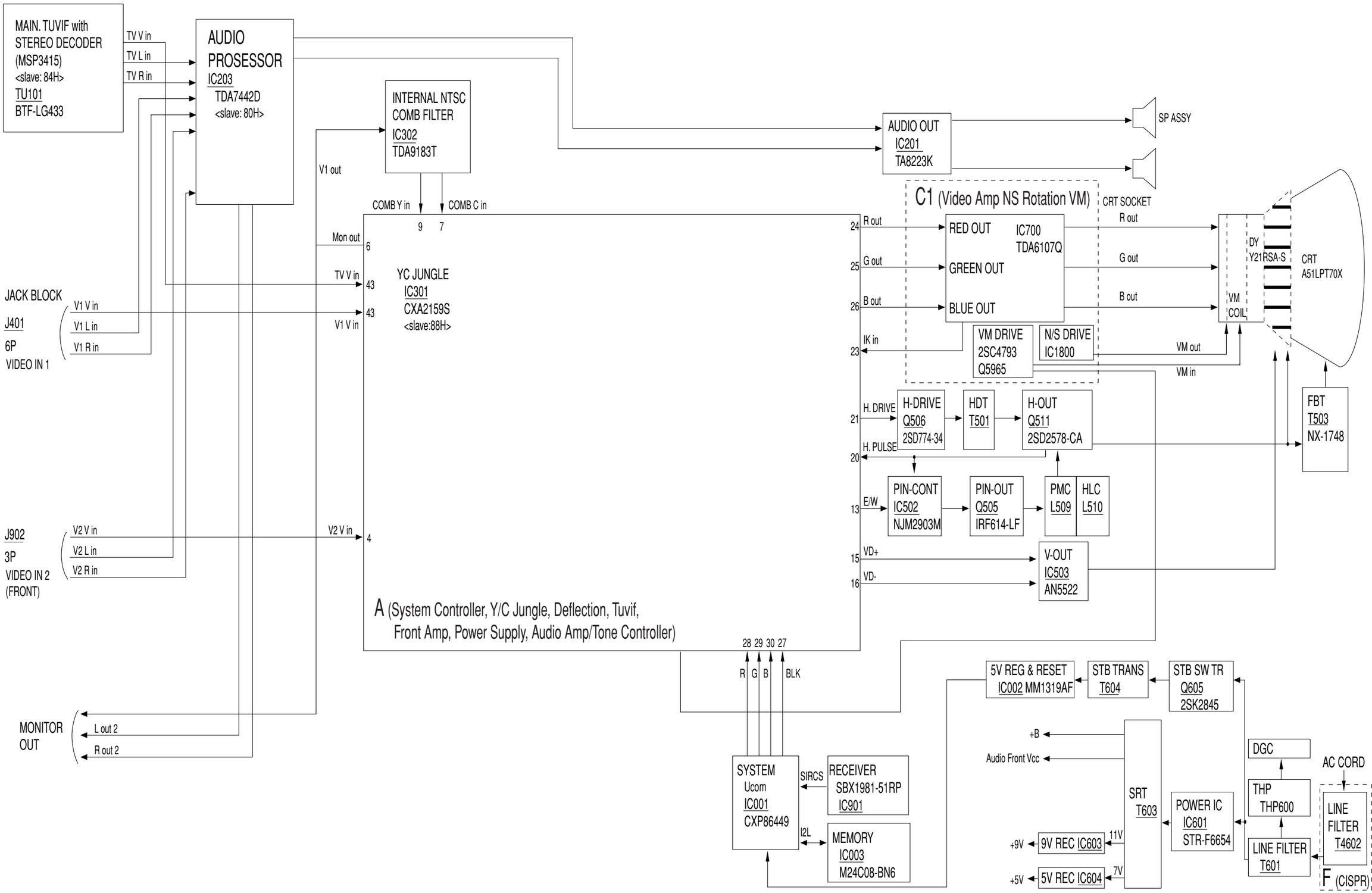


GEO 0A UPN (UPPER CORNER PIN)
GEO 0B LPN (LOWER CORNER PIN)

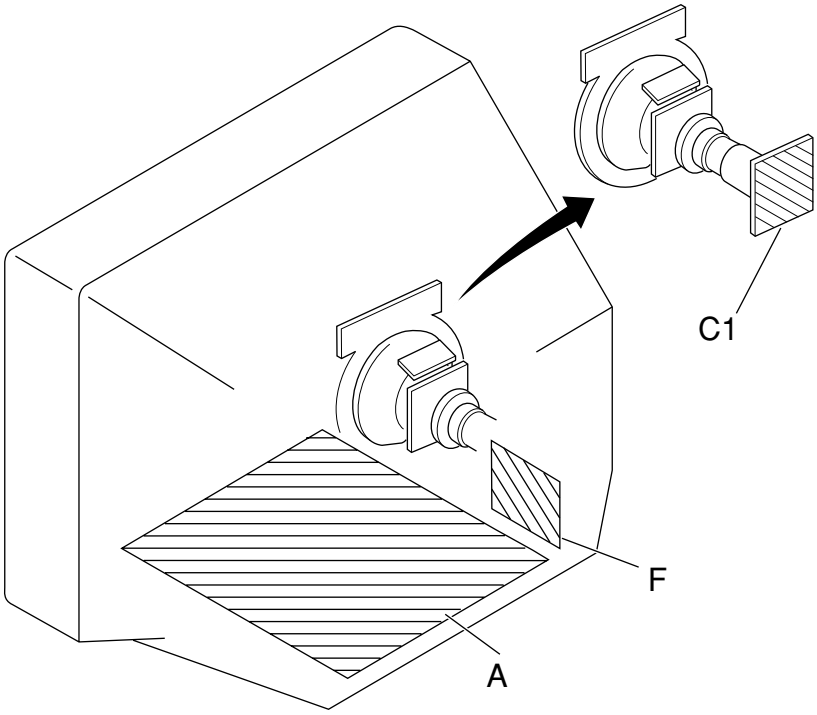


SECTION 5
DIAGRAMS

5-1. BLOCK DIAGRAM



5-2. CIRCUIT BOARDS LOCATION



5-3. SCHEMATIC DIAGRAM

Note:

- All capacitors are in µF unless otherwise noted.
- All electrolytic capacitors are rated at 50V unless otherwise noted.
- All resistors are in ohms.
  kΩ = 1000Ω, MΩ = 1000kΩ
- Indication of resistance which does not have rating electrical power is as follows.

  Pitch: 5 mm
  Rating electrical power 1/4W (CHIP: 1/10W)

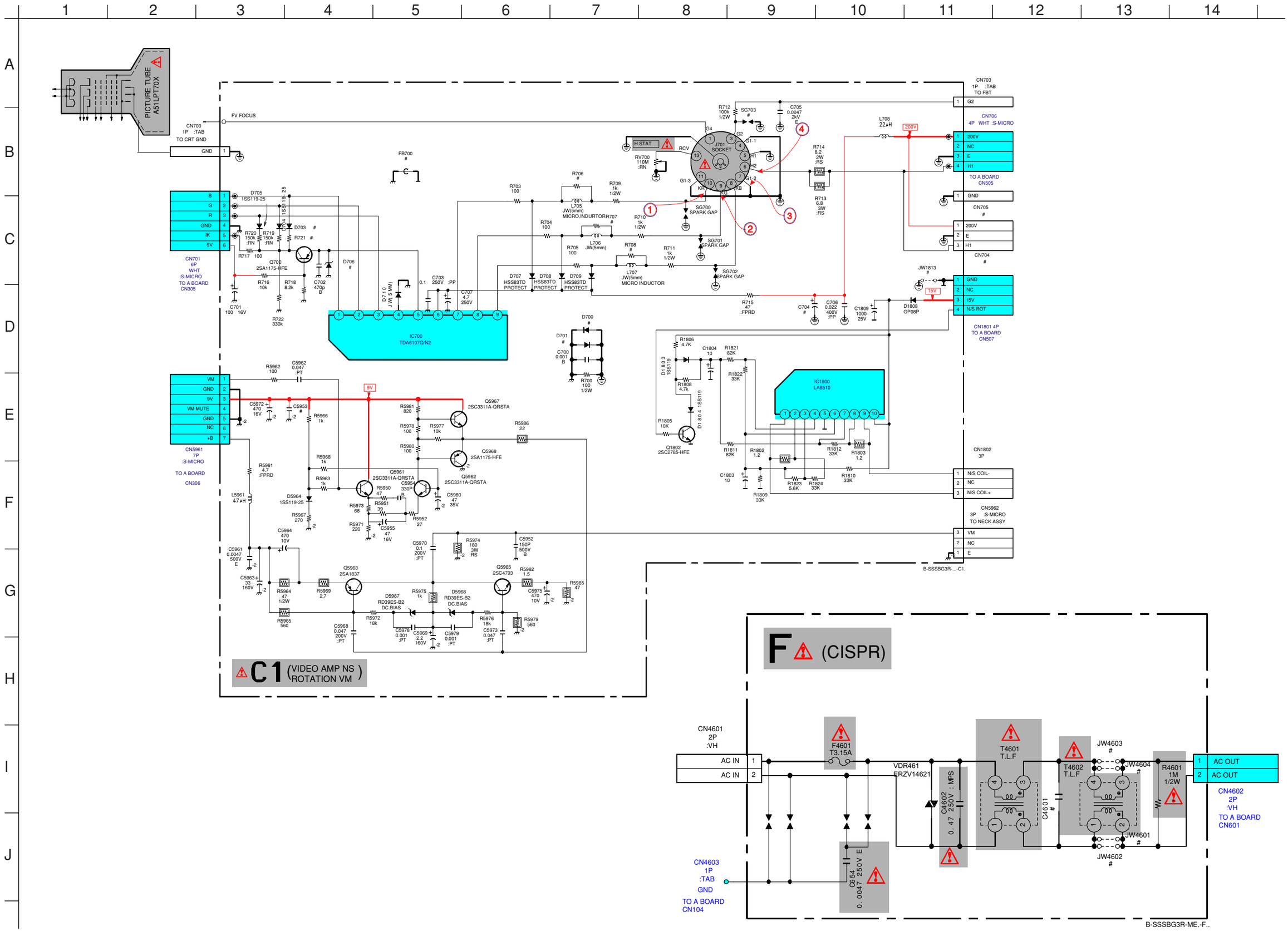
- : nonflammable resistor.
- △ : internal component.
- : panel designation or adjustment for rrepair.
- All variable and adjustable resistors have characteristic curve B unless otherwise noted.
- **Redings are taken with a color-bar signal input.**
  no mark : COMMON
  Underline : PAL
  ( ) : SECAM
  [ ] : NTSC 3.58
  << >> : NTSC 4.43
- **Readings are taken with a 10M digital m ultimeter.**
- **Voltage are dc with respect to ground unless otherwise noted.**
- **Voltage variations may be noted due to normal production tolerances.**
- **All voltage are in V.**
- **✻ : Cannot be measured.**
- **Circled numbers are waveform references.**
- **: B +bus.**
- **: B –bus.**
- **: signal path.**

Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: RW	NONFLAMMABLE WIREWOUND
	: ✻	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

Note: The component identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

(1) C1 and F Boards Schematic Diagrams



(2) A Board Schematic Diagram

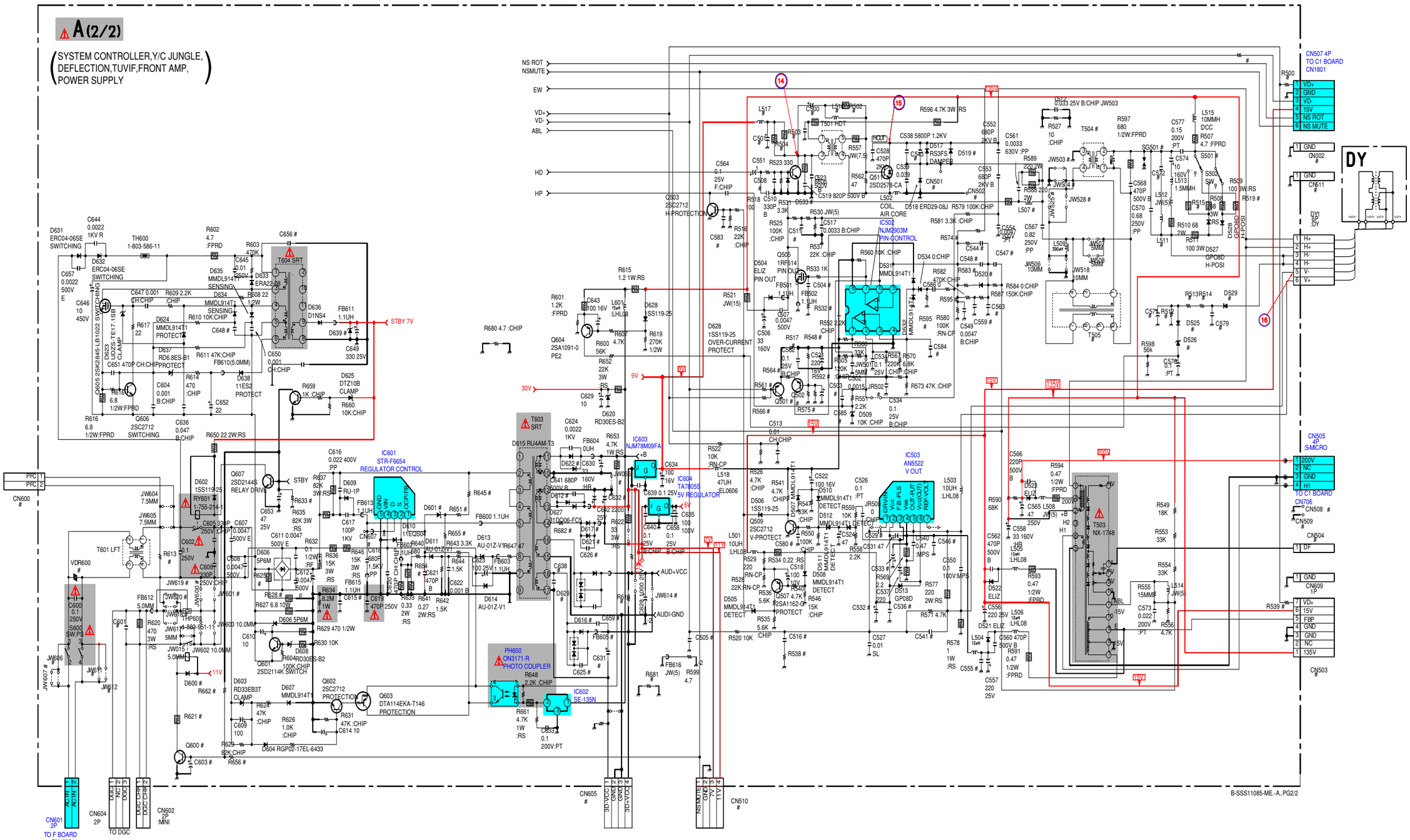
A (1/2)

(SYSTEM CONTROLLER,Y/C JUNGLE,
DEFLECTION,TUVIF,FRONT AMP,
POWER SUPPLY)

KV-XA21M80 RM-952

A (2/2)

(SYSTEM CONTROLLER,Y/C JUNGLE, DEFLECTION,TUVIF,FRONT AMP, POWER SUPPLY)



5-4. VOLTAGE MEASUREMENT

A(1/2) BOARD VOLTAGE LIST

Ref	Pin No	Voltage[v]
IC001	1	0
	2	[(4.5)]<4.0>
	3	[(0.5)]<0.3>
	4	5.0
	5	5.0
	6	0
	7	4.0
	8	4.8
	9	0.5
	10	4.8
	11	5.0
	12	0
	13	2.1
	14	2.0
	15	5.0
	16	5.0
	17	0
	18	0
	19	[(2.0)]<2.7>
	20	0.4
	21	5.0
	22	0
	23	5.0
	24	0.4
	25	0
	26	5.0
	27	4.8
	28	5.0
	29	0
	30	0
	31	0
	32	0
	33	5.0
	34	0
	35	0
	36	2.3
	37	2.5
	38	4.9
	39	5.0
	40	0
	41	0.4
	42	0.4
	43	0
	44	5.0
	45	5.0
	46	4.6
	47	5.0
	48	4.4
	49	0
	50	2.0
	51	0
	52	[(5.0)]<0>
IC002	1	0
	2	5.0
	3	4.9
	4	7.3
	5	5.0
	6	0
	7	0
IC003	1	0
	2	0
	3	0
	4	0
	5	5.0
	6	5.0
	7	0
	8	5.0

Ref	Pin No	Voltage[v]
IC100	1	4.8
	2	4.8
	3	0
IC201	1	0
	2	19.6
	3	10.4
	4	20.0
	5	10.5
	6	19.6
	7	0
	8	20.0
	9	10.3
	10	0.6
	11	0
	12	0
	13	0
	14	0.6
	15	0
IC203	1	4.4
	2	4.4
	3	4.4
	4	4.4
	5	4.4
	6	4.4
	7	4.4
	8	4.4
	9	4.4
	10	4.4
	11	4.4
	12	4.4
	13	4.4
	14	4.4
	15	4.4
	16	4.4
	17	4.4
	18	4.4
	19	4.4
	20	0
	21	4.5
	22	4.5
	23	4.4
	24	8.8
	25	0
	26	3.7
	27	3.7
	28	4.4
IC301	1	3.4
	2	5.0
	3	[(2.4)]<1.9>
	4	5.0
	5	4.8
	6	4.3
	7	1.5
	8	3.8
	9	4.9
	10	3.8
	11	5.0
	12	0
	13	3.8
	14	2.3
	15	3.5
	16	3.4
	17	5.4
	18	7.6
	19	0.8
	20	3.6
	21	3.0

Ref	Pin No	Voltage[v]
	22	3.8
	23	[(3.0)]<3.5>
	24	1.5
	25	1.5
	26	1.6
	27	0
	28	4.5
	29	4.5
	30	4.5
	31	8.8
	32	4.1
	33	4.1
	34	3.6
	35	8.8
	36	4.5
	37	4.5
	38	0
	39	4.1
	40	4.7
	41	4.7
	42	0
	43	5.1
	44	4.9
	45	[(7.1)]<6.5>
	46	5.0
	47	8.7
	48	0.2
	49	[5.1] (4.3) <0>
	50	0
	51	0
	52	*
IC302	1	0.9
	2	0
	3	1.3
	4	0
	5	4.9
	6	4.9
	7	1.0
	8	0
	9	0.5
	10	0
	11	0
	12	1.6
	13	0
	14	1.5
	15	0
	16	1.5
IC502	1	1.3
	2	3.6
	3	1.2
	4	0
	5	3.4
	6	3.0
	7	6.8
	8	8.9
IC503	1	1.0
	2	13.6
	3	[(-12.4)]<12.1>
	4	-13.6
	5	0.2
	6	13.8
	7	1.0
IC601	1	<[3.3]>(1.8)
	2	1.7 (0.2)
	3	113.3
	4	19.0(17.5)
	5	1.6(0.1)

A (2/2) BOARD VOLTAGE LIST

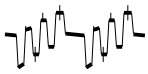
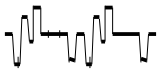
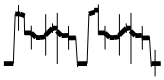
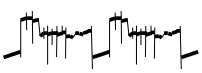
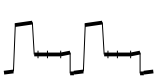
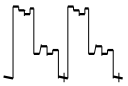
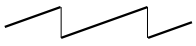
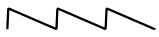
Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]
IC602	1	121.1	Q306	B	1.5	Q505	D	[(8.6)]<8.2>
	2	135.0		C	8.1		G	6.9
	3	0		E	0.9		S	0
IC603	I	12.8	Q307	B	4.3	Q506	B	-0.4
	G	0		C	8.7		C	48.6
	O	8.9		E	3.7		E	0
IC604	I	10.5	Q308	B	3.6	Q507	B	13.0
	G	0		C	0.5		C	0
	O	5.0		E	0.8		E	13.5
IC901	1	4.9	Q310	B	0.2	Q509	B	0.6
	2	0		C	4.9		C	0.1
	3	[(4.7)]<4.1>		E	0		E	0
Q002	B	0	Q312	B	5.3	Q511	B	0
	C	5.0		C	0		C	122.6
	E	0		E	[(7.0)]<6.5>		E	0
Q101	B	2.8	Q313	B	0	Q600	B	0
	C	8.9		C	12.7		C	0
	E	2.2		E	0		E	0
Q201	B	0	Q314	B	0.5	Q604	B	133.9
	C	0		C	0		C	0
	E	0		E	1.0		E	134.3
Q202	B	0	Q315	B	0	Q605	D	121.6
	C	0		C	[(1.6)]<1.9>		G	[(-0.4)]<-0.6>
	E	0		E	0		S	-2.1
Q205	B	0	Q316	B	4.1	Q606	B	-1.5
	C	10.3		C	0		C	-0.5
	E	0		E	4.7		E	-2.1
Q206	B	0	Q317	B	4.1	Q607	B	0.7
	C	0		C	0		C	0
	E	0		E	4.7		E	0
Q207	B	0	Q401	B	0	Q608	B	0
	C	0		C	0		C	0.7
	E	0		E	0		E	0
Q301	B	12.8	Q402	B	0	Q901	B	0.1
	C	0		C	0		C	5.0
	E	12.6		E	0		E	0.1
Q302	B	1.5	Q403	B	4.5	Q902	B	0
	C	8.1		C	0		C	5.0
	E	0.9		E	5.2		E	0
Q303	B	8.1	Q404	B	4.5	PH600	1	128.7
	C	1.5		C	0		2	127.7
	E	8.7		E	5.2		3	3.6
Q305	B	8.1	Q503	B	0		4	17.5
	C	1.8		C	3.6			
	E	8.7		E	0			

C1 BOARD VOLTAGE LIST

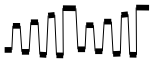
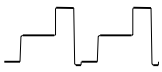
Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]	Ref	Pin No	Voltage[v]
IC700	1	1.6		8	6.6	Q5962	B	2.4
	2	1.6		9	6.6		C	5.3
	3	1.5		10	13.1		E	1.8
	4	0	J701	G2	<[325.8]>(328.2)	Q5963	B	134.1
	5	[(4.9)]<5.3>		H1	0		C	67.1
	6	194.5		KB	[155.8]<(150.3)>		E	134.7
	7	[(160.5)]<154>		KG	<[153.7]>(155.7)	Q5965	B	0.9
	8	[157.4](155)<153>		KR	[(160.8)]<154.57>		C	67.1
	9	[155.3]<(150)>	Q700	B	4.5		E	0.3
IC1800	1	6.7		C	[(3.6)]<4.3>	Q5967	B	5.9
	2	6.7		E	[(4.9)]<5.3>		C	8.9
	3	6.7	Q1802	B	0.3		E	5.6
	4	6.6		C	3.6	Q5968	B	5.3
	5	0		E	0		C	0
	6	6.6	Q5961	B	2.4		E	5.6
	7	6.6		C	8.9			
				E	1.8			

5-5. WAVEFORMS

A BOARD WAVEFORMS

① 4.8Vp-p (V)	② 5.0Vp-p (V)	③ 4.4Vp-p (V)	④ PAL/SECAM  1.2Vp-p (H)	④ NTSC  1.2Vp-p (H)
⑤ 0.9Vp-p (V)	⑥ PAL/SECAM  0.9Vp-p (H)	⑥ NTSC  1.2Vp-p (H)	⑦ 1.0Vp-p (H)	⑧  1.0Vp-p (H)
⑨ 1.4Vp-p (H)	⑩ 3.5Vp-p	⑪  3.2Vp-p (H)	⑫ PAL/SECAM 3.2Vp-p (H)	⑫ NTSC 3.2Vp-p (H)
⑬  1.4Vp-p (H)	⑭ 110Vp-p	⑮ 194Vp-p	⑯  1.5Vp-p (V)	

C1 BOARD WAVEFORMS

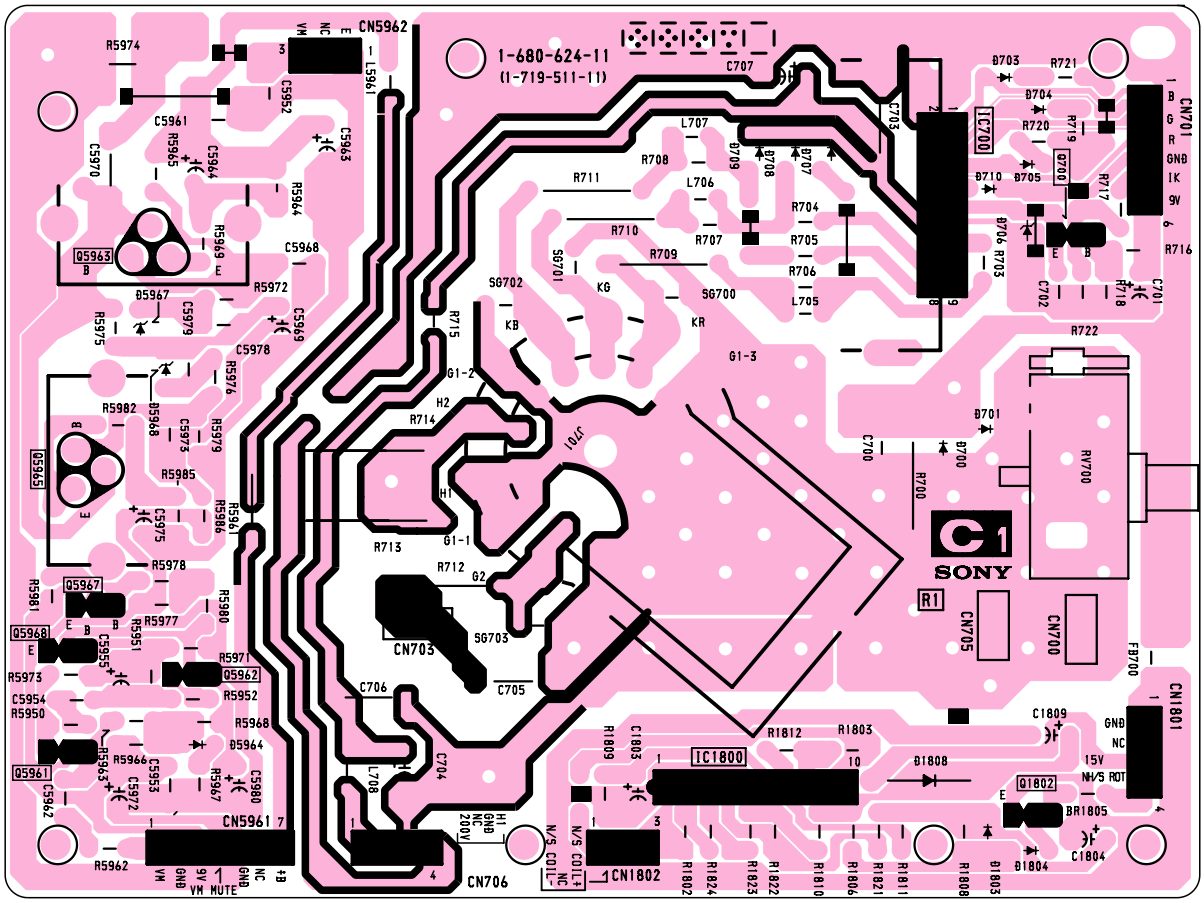
① 25Vp-p (H)	② PAL 89Vp-p (H)	② SECAM 90Vp-p (H)
② NTSC 3.58  80Vp-p (H)	② NTSC 4.43 93Vp-p (H)	③  PAL/SECAM : 95Vp-p (H) NTSC : 86Vp-p (H)
④ 75Vp-p (H)		

5-6. PRINTED WIRING BOARDS AND PARTS LOCATION
PRINTED WIRING BOARDS

C1 [VIDEO AMP NS ROTATION VM]

F [CISPR]

– C1 Board –



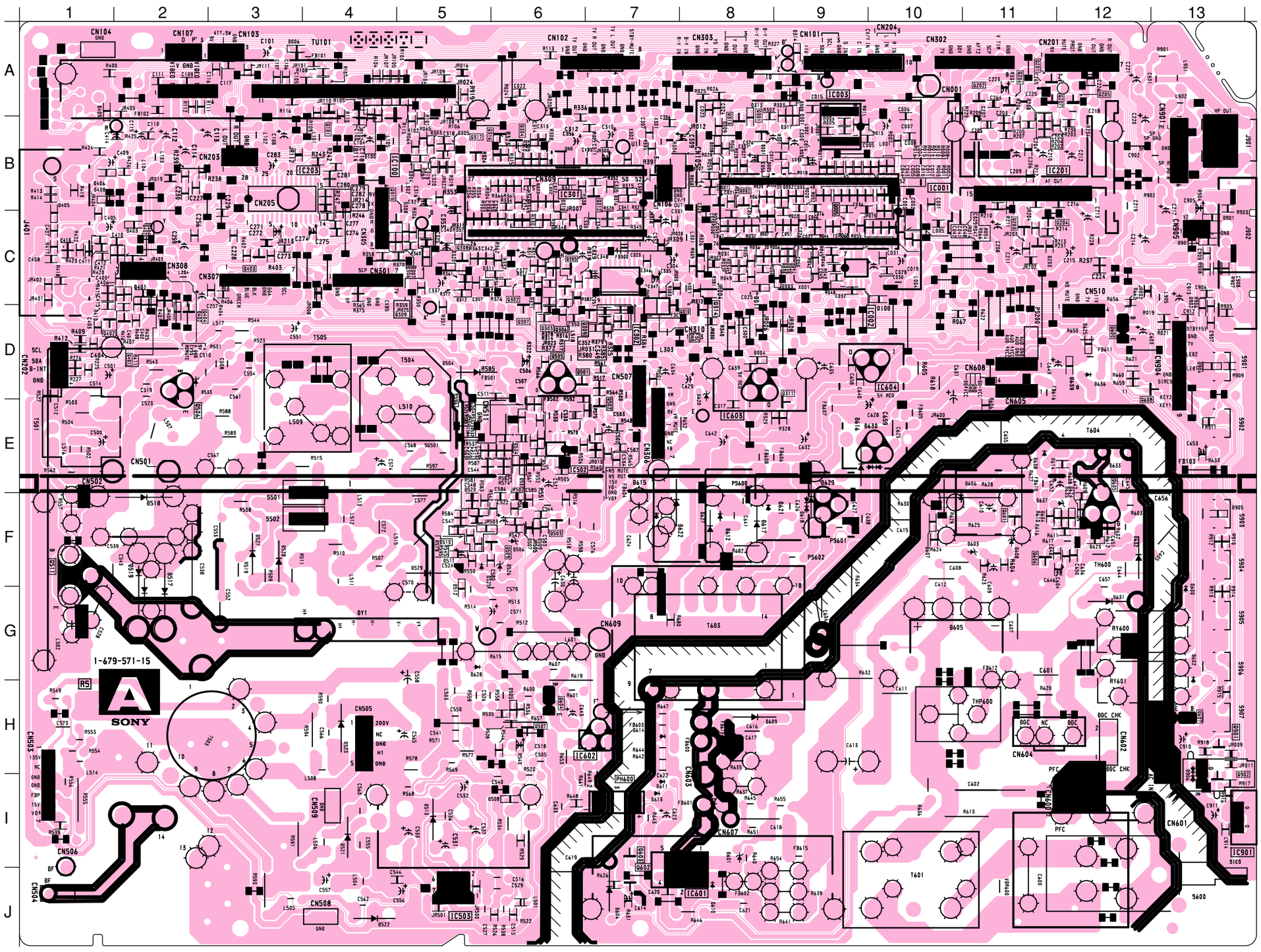
KV-XA21M80
RM-952

PRINTED WIRING BOARDS

A [SYSTEM CONTROLLER, Y/C JUNGLE, DEFLECTION, TUVIF, FRONT AMP, POWER SUPPLY, AUDIO AMP/TONE CONTROLLER]

– A Board –

NOTE:
The circuit indicated at left contains high voltage of over 1220 Vp-p. Please pay attention when inspecting or repairing it to prevent an electric shock.



A BOARD

IC

IC001	B-10
IC002	D-10
IC003	A-9
IC100	B-4
IC201	B-12
IC203	B-4
IC301	B-6
IC302	D-7
IC502	E-6
IC503	J-5
IC601	J-8
IC602	H-7
IC603	E-8
IC604	D-10
IC901	I-13

TRANSISTOR

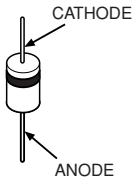
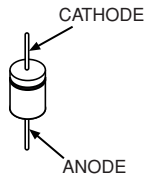
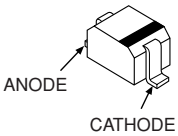
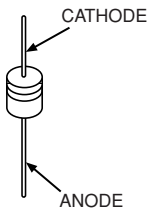
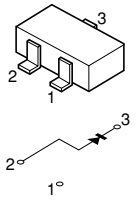
Q001	B-8
Q002	B-8
Q005	B-9
Q101	B-4
Q201	A-11
Q202	A-11
Q203	C-11
Q204	C-12
Q205	A-12
Q206	A-11
Q207	A-12
Q301	A-8
Q302	C-6
Q303	D-6
Q304	B-6
Q305	C-6
Q306	D-6
Q307	D-6
Q308	C-8
Q309	D-7
Q310	D-8
Q311	D-9
Q312	B-7
Q313	B-8
Q314	D-8
Q315	B-4
Q316	B-5
Q317	B-5
Q401	D-2
Q402	D-1
Q403	C-3
Q404	D-2
Q501	D-6
Q502	E-7
Q503	F-6
Q505	D-6
Q506	E-2
Q507	H-6
Q509	F-6
Q511	F-1
Q600	D-12
Q601	F-11
Q602	J-7
Q603	I-7
Q604	H-6
Q605	E-12
Q606	F-11
Q607	H-13
Q608	D-12
Q901	H-13
Q902	H-13

DIODE

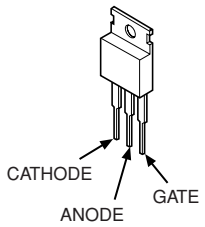
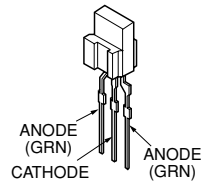
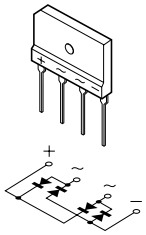
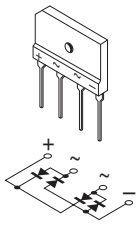
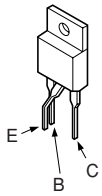
D001	B-8
D002	B-9
D003	C-9
D004	D-8
D005	B-8
D006	A-3
D007	B-8
D008	B-8
D009	B-8
D100	B-4
D203	C-11
D300	A-9
D301	B-9
D303	B-5
D304	B-5
D305	B-5
D306	C-5
D307	C-5
D308	B-5
D309	D-5
D312	C-5
D313	A-8
D314	A-9
D315	B-7
D317	B-9
D319	B-6
D320	C-5
D321	B-6
D322	B-6
D401	C-2
D402	D-2
D403	C-2
D404	C-2
D405	B-1
D406	B-1
D407	C-2
D408	B-1
D409	A-1
D504	D-5
D505	H-6
D506	F-6
D507	F-6
D508	I-6
D509	F-6
D510	F-5
D511	F-5
D512	G-5
D513	I-5
D517	F-2
D518	F-2
D519	F-2
D520	E-5
D521	I-4
D522	J-4
D523	H-4
D525	F-5
D526	F-6
D527	F-3
D528	F-3
D529	F-5
D531	E-6
D533	D-2
D534	E-6
D600	F-13
D601	I-8
D602	G-13
D603	F-11
D604	J-7
D605	G-10
D606	E-11
D607	F-10
D608	F-11
D609	H-8
D610	J-8
D611	I-7
D612	F-8
D613	I-7
D615	E-7
D616	E-9
D617	F-8
D618	F-9
D620	D-8
D621	F-9
D622	F-8
D623	F-12
D624	E-12
D625	E-12
D627	F-8
D628	G-5
D629	F-9
D630	E-10
D631	G-12
D632	F-12
D633	E-12
D634	F-11
D635	F-12
D636	D-12
D637	F-11
D638	E-11
D651	E-7
D901	C-13
D902	C-13
D903	C-13
D904	D-13
D905	F-13
D906	H-13

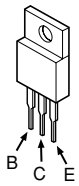
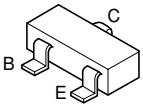
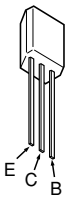
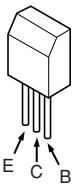
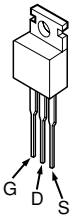
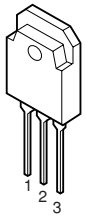
5-7 SEMICONDUCTORS

DIODE

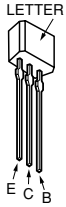
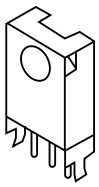
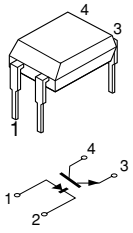
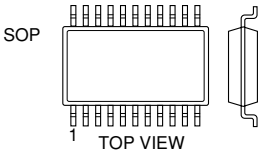
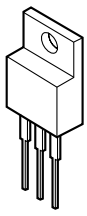
					
AU-01Z-V1 EL1Z ERA22-08 ERC04-06SE GP08D HSS83TD RD33EB3T RGP02-17E-6433 RU4AM-T3 RS3FS 31DQ06-FC5	ERD29-08J	RD5.1SB-T2 RD9.1S-B 1SS352 DTZ10B UDZS-TE17-15B	D1NS4 RD6.8ES-B1 RD6.8SB-T1 RD20ES-B2 RD30ES-B2 RD39-ES-B2 1SS119-25 11EQS04 11ES2	1SS302	RN4Z

TRANSISTOR

					
5P-6M	SPB-25MVWF	D3SB60	LN4SB60	MMDL914T1	2SK2845-LB102

					
2SA1837 2SC4793	DTA114EKA-T146 UN2213 UN2216 2SA1162-G 2SD2114K 2SC2712-YG	2SA1091-0 2SD2144S-4VW	2SD774-34	IRF614	2SD2578-CA

IC

				
2SC2785-HFE 2SA1175-HFE 2SC3311A-QRSTA	SBX1981-51RP	ON3171-R	MM1319AFBE NJM2903M	NJM78M09FA TA7805S

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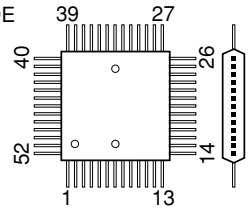
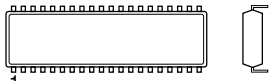
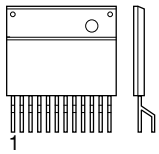
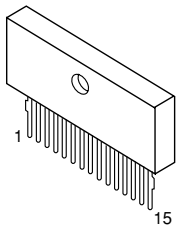
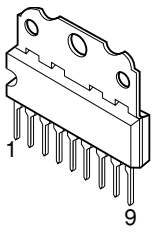
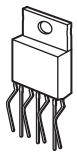
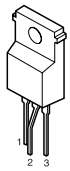
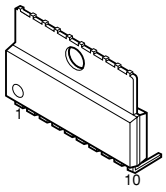
MARKING SIDE VIEW 	DIP  TOP VIEW Dual In-line Package Pin 6～98	MARKING SIDE VIEW  Zig-zag In -line Package Pin 6～99
RU-1P	CXP86449-630S CXA2159S M24C08-BN6 TDA7442DO13TR TDA9183T	STR-F6654

				
TA8223K	TDA6107Q/N2	AN5522	SE-135N	LA6510

SECTION 6
EXPLODED VIEWS

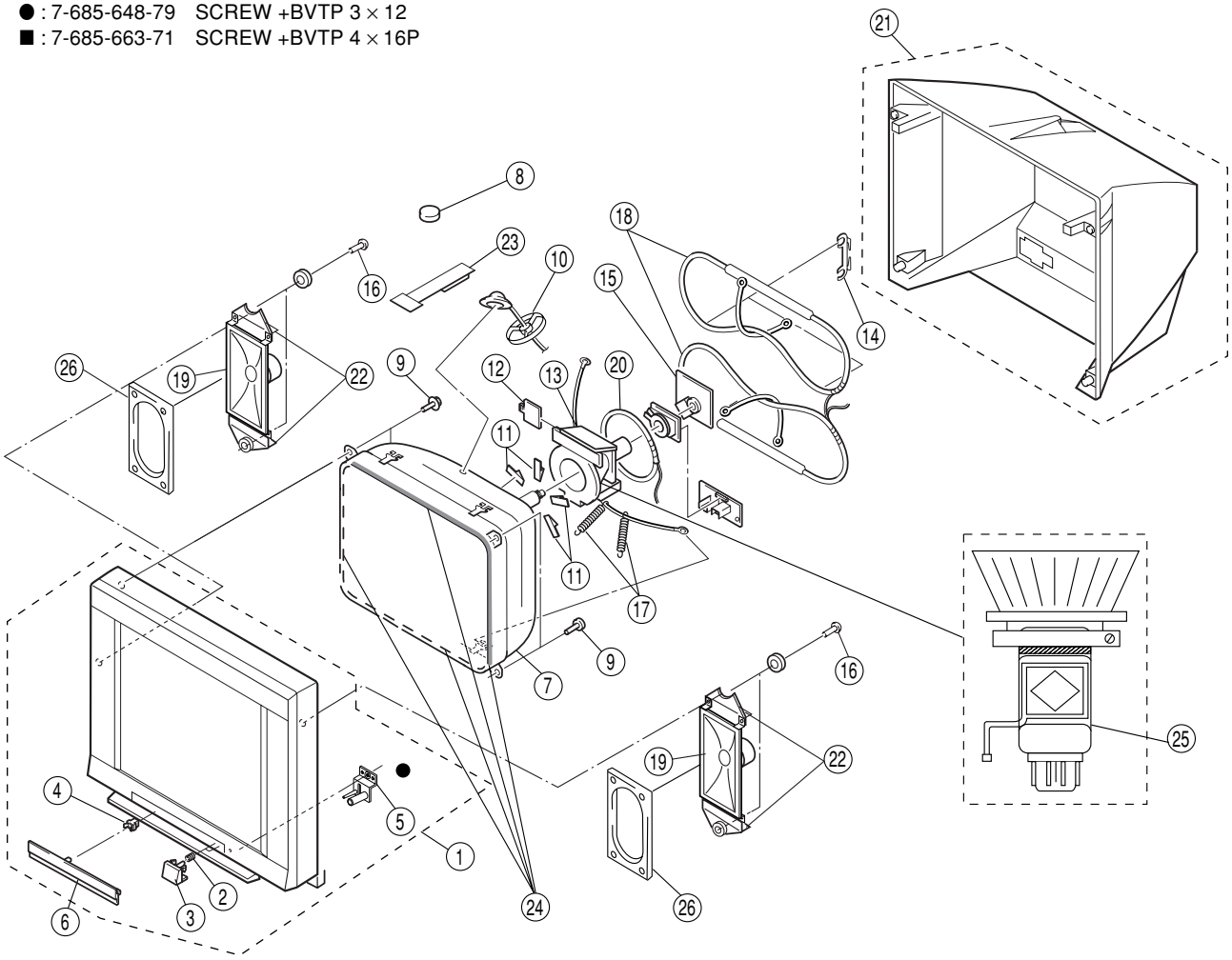
NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

6-1. PICTURE TUBE

● : 7-685-648-79 SCREW +BVTP 3 × 12
■ : 7-685-663-71 SCREW +BVTP 4 × 16P

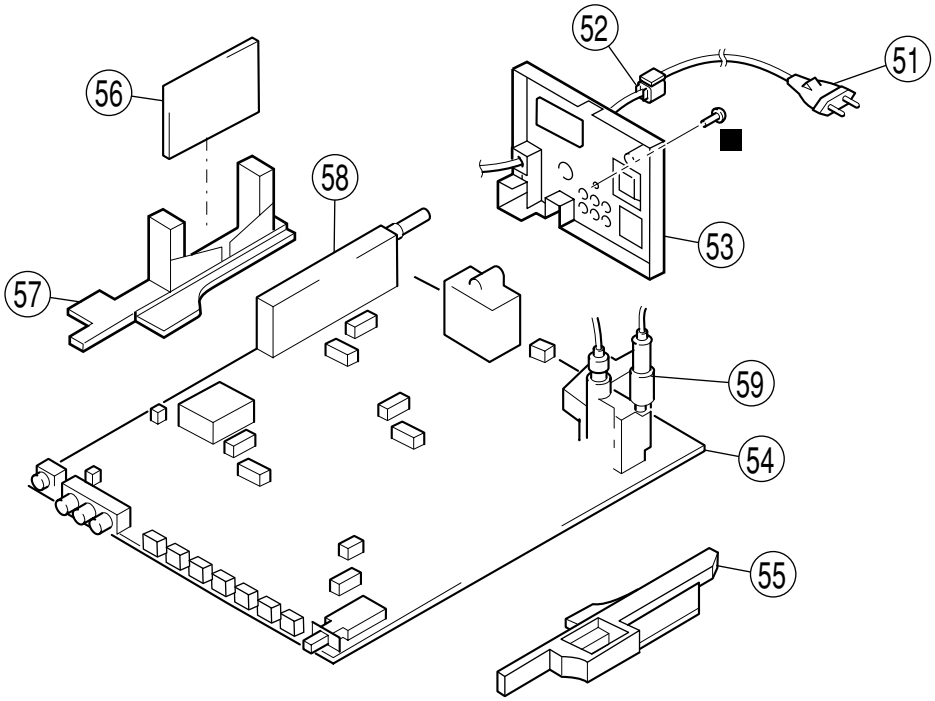


REF. NO.		PART NO.	DESCRIPTION	REMARK
1		X-4038-507-3	BEZNET ASSY	2 - 5
2		4-036-405-11	SPRING, COMPRESSION	
3		4-080-400-01	BUTTON, POWER	
4		4-047-464-01	CATCHER, PUSH	
5	*	4-080-401-01	GUIDE, LIGHT	
6		4-080-399-12	DOOR, CONTROL	
7	⚠	8-738-809-05	PICTURE TUBE (A51LPT70X)	
8		1-452-032-00	MAGNET, DISC	
9		4-365-808-01	SCREW, (5) TAPPING	
10	*	3-704-372-81	HOLDER, HV CABLE	
11		4-046-600-11	SPACER, DY	
12		4-057-714-01	PIECE, TLH CONVERGENCE	
13	⚠	8-451-505-11	DEFLECTION YOKE (Y21RSA-S)	
14		4-064-883-03	HOLDER, DGC	
15	*	A-1332-180-A	C1 BOARD, MOUNTED	

REF. NO.		PART NO.	DESCRIPTION	REMARK
16		4-302-404-03	SCREW (WASHED HEAD) (+P4 X 16)	
17		4-078-765-01	SPRING, EXTENSION	
18	⚠	1-419-479-61	COIL, DEGAUSSING	
19		1-825-028-11	SPEAKER (15 X 6.5 cm)	
20		1-452-728-61	COIL, NA ROTATION	
21		X-4038-831-5	REAR, COVER ASSY (■ 8 SCREWS)	
22	*	4-046-981-01	BRACKET, SPEAKER	
23		4-051-736-42	PIECE A(90) CONV, CORRECT	
24		4-069-652-02	CUSHION (HS BAND)	
25		1-416-864-12	COIL VM	
26	*	4-069-797-01	CUSHION SPEAKER (S)	

6-2. CHASSIS

■ : 7-685-663-71 SCREW +BVTP 4 × 16



REF. NO.	PART NO.	DESCRIPTION	REMARK
51	⚠ 1-574-062-11	CORD, POWER	
52	⚠ 4-022-115-00	HOLDER, AC CORD	
53	* 4-076-501-11	BRACKET TERMINAL	
54	* A-1300-096-A	A BOARD COMPLETE	
55	* 4-067-876-11	PWB(R), GUIDE	
56	* A-1241-487-A	F BOARD MOUNTED	
57	* 4-067-875-11	PWB(L), GUIDE	
58	8-598-449-10	TUNER, FSS BTF-LG433	
59	⚠ 1-453-293-11	TRANSFORMER ASSY FLYBACK	
		(NX-1748//M3A4)	

SECTION 7
ELECTRICAL PARTS LIST

NOTE:

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- All resistors are in ohms
- F : nonflammable

CAPACITORS
- MF : µF, PF : µµF

COILS
- MMH : mH, UH : µH

REF NO.	PART NO.	DESCRIPTION		REMARK	
*	A-1300-096-A	A BOARD COMPLETE			
		**********			
*	4-055-304-01	HOLDER, LED			
	4-067-182-03	HOLDER, FBT			
	4-382-854-11	SCREW (M3X10), P, SW (+)			
	4-382-854-21	SCREW (M3X14), P, SW (+)			
	7-685-648-79	SCREW +BVTP	3X12 TYPE2 IT-3		
		<CAPACITOR>			
C004	1-163-001-11	CERAMIC CHIP	220PF	10.00%	50V
C005	1-163-001-11	CERAMIC CHIP	220PF	10.00%	50V
C006	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C007	1-126-947-11	ELECT	47UF	20.00%	16V
C008	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C010	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C012	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C013	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C014	1-126-947-11	ELECT	47UF	20.00%	25V
C015	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C016	1-163-247-91	CERAMIC CHIP	68PF	5.00%	50V
C017	1-163-247-91	CERAMIC CHIP	68PF	5.00%	50V
C019	1-126-947-11	ELECT	47UF	20.00%	25V
C022	1-163-227-11	CERAMIC CHIP	10PF	0.50PF	50V
C023	1-163-227-11	CERAMIC CHIP	10PF	0.50PF	50V
C024	1-163-227-11	CERAMIC CHIP	10PF	0.50PF	50V
C026	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C027	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C028	1-163-037-11	CERAMIC CHIP	0.022UF	10.00%	50V
C030	1-126-965-91	ELECT	22UF	20.00%	50V
C031	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C032	1-107-823-11	CERAMIC CHIP	0.47UF	10.00%	16V
C041	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C042	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C043	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C044	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C047	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C048	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C050	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C051	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C053	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C054	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C055	1-163-251-11	CERAMIC CHIP	100PF	5.00%	50V
C103	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C104	1-104-665-11	ELECT	100UF	20.00%	10V
C107	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V
C108	1-126-947-11	ELECT	47UF	20.00%	16V
C109	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V
C110	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V
C111	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V

REF NO.	PART NO.	DESCRIPTION		REMARK	
C112	1-126-947-11	ELECT	47UF	20.00%	16V
C113	1-126-947-11	ELECT	47UF	20.00%	25V
C114	1-126-967-11	ELECT	47UF	20.00%	50V
C118	1-110-501-11	CERAMIC CHIP	0.33UF	10.00%	16V
C202	1-163-023-00	CERAMIC CHIP	0.015UF	10.00%	50V
C203	1-163-023-00	CERAMIC CHIP	0.015UF	10.00%	50V
C204	1-130-489-00	MYLAR	0.033UF	5.00%	50V
C205	1-163-019-00	CERAMIC CHIP	0.0068UF	10.00%	50V
C206	1-163-019-00	CERAMIC CHIP	0.0068UF	10.00%	50V
C207	1-130-489-00	MYLAR	0.033UF	5.00%	50V
C208	1-126-964-11	ELECT	10UF	20.00%	50V
C209	1-126-964-11	ELECT	10UF	20.00%	50V
C210	1-126-933-11	ELECT	100UF	20.00%	16V
C211	1-126-941-11	ELECT	470UF	20.00%	25V
C212	1-126-933-11	ELECT	100UF	20.00%	16V
C213	1-126-933-11	ELECT	100UF	20.00%	16V
C214	1-126-942-61	ELECT	1000UF	20.00%	25V
C215	1-126-942-61	ELECT	1000UF	20.00%	25V
C216	1-163-021-91	CERAMIC CHIP	0.01UF	10.00%	50V
C217	1-126-964-11	ELECT	10UF	20.00%	50V
C218	1-136-167-00	FILM	0.15UF	5.00%	50V
C219	1-136-167-00	FILM	0.15UF	5.00%	50V
C220	1-126-942-61	ELECT	1000UF	20.00%	25V
C221	1-126-964-11	ELECT	10UF	20.00%	50V
C223	1-126-965-91	ELECT	22UF	20.00%	50V
C224	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C225	1-109-982-11	CERAMIC CHIP	1UF	10.00%	10V
C226	1-109-982-11	CERAMIC CHIP	1UF	10.00%	10V
C227	1-164-346-11	CERAMIC CHIP	1UF		16V
C228	1-216-077-91	RES-CHIP	15K	5%	1/10W
C229	1-216-077-91	RES-CHIP	15K	5%	1/10W
C230	1-164-346-11	CERAMIC CHIP	1UF		16V
C256	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C259	1-126-933-11	ELECT	100UF	20.00%	16V
C264	1-164-505-11	CERAMIC CHIP	2.2UF		16V
C265	1-164-505-11	CERAMIC CHIP	2.2UF		16V
C271	1-117-720-11	CERAMIC CHIP	4.7UF		10V
C272	1-126-961-11	ELECT	2.2UF	20.00%	50V
C273	1-117-720-11	CERAMIC CHIP	4.7UF		10V
C274	1-126-961-11	ELECT	2.2UF	20.00%	50V
C275	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C276	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C277	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C278	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C279	1-163-010-11	CERAMIC CHIP	0.0012UF	10.00%	50V
C280	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C281	1-163-018-00	CERAMIC CHIP	0.0056UF	10.00%	50V
C282	1-163-018-00	CERAMIC CHIP	0.0056UF	10.00%	50V
C283	1-126-965-91	ELECT	22UF	20.00%	50V
C301	1-126-935-11	ELECT	470UF	20.00%	16V
C302	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V
C303	1-126-964-11	ELECT	10UF	20.00%	50V

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

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REF NO.	PART NO.	DESCRIPTION		REMARK	
C304	1-126-967-11	ELECT	47UF	20.00%	50V
C305	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C306	1-163-233-91	CERAMIC CHIP	18PF	5.00%	50V
C307	1-163-233-91	CERAMIC CHIP	18PF	5.00%	50V
C308	1-163-259-91	CERAMIC CHIP	220PF	5.00%	50V
C309	1-137-378-11	MYLAR	0.22UF	5.00%	50V
C310	1-126-963-11	ELECT	4.7UF	20.00%	50V
C311	1-126-964-11	ELECT	10UF	20.00%	50V
C312	1-164-346-11	CERAMIC CHIP	1UF		16V
C313	1-164-346-11	CERAMIC CHIP	1UF		16V
C315	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C316	1-126-947-11	ELECT	47UF	20.00%	25V
C317	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C318	1-163-031-91	CERAMIC CHIP	0.01UF		50V
C319	1-163-031-91	CERAMIC CHIP	0.01UF		50V
C320	1-163-031-91	CERAMIC CHIP	0.01UF		50V
C322	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V
C324	1-163-017-00	CERAMIC CHIP	0.0047UF	10.00%	50V
C325	1-126-960-11	ELECT	1UF	20.00%	50V
C327	1-126-965-91	ELECT	22UF	20.00%	50V
C328	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C329	1-126-963-11	ELECT	4.7UF	20.00%	50V
C330	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C332	1-126-963-11	ELECT	4.7UF	20.00%	50V
C335	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C336	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C337	1-126-961-11	ELECT	2.2UF	20.00%	50V
C338	1-163-017-00	CERAMIC CHIP	0.0047UF	10.00%	50V
C341	1-115-340-11	CERAMIC CHIP	0.22UF	10.00%	25V
C342	1-163-259-91	CERAMIC CHIP	220PF	5.00%	50V
C347	1-126-933-11	ELECT	100UF	20.00%	16V
C348	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C349	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C350	1-216-295-91	SHORT	0		
C351	1-126-964-11	ELECT	10UF	20.00%	50V
C352	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C353	1-126-960-11	ELECT	1UF	20.00%	50V
C356	1-126-962-11	ELECT	3.3UF	20.00%	50V
C357	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C401	1-164-346-11	CERAMIC CHIP	1UF		16V
C402	1-164-346-11	CERAMIC CHIP	1UF		16V
C403	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V
C404	1-163-005-91	CERAMIC CHIP	470PF	10.00%	50V
C405	1-126-935-11	ELECT	470UF	20.00%	16V
C406	1-164-346-11	CERAMIC CHIP	1UF		16V
C407	1-164-346-11	CERAMIC CHIP	1UF		16V
C408	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C409	1-126-963-11	ELECT	4.7UF	20.00%	50V
C415	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C502	1-163-145-00	CERAMIC CHIP	0.0015UF	5.00%	50V
C506	1-107-638-11	ELECT	33UF	20.00%	160V
C507	1-161-830-00	CERAMIC	0.0047UF		500V
C510	1-102-112-00	CERAMIC	330PF	10.00%	50V
C512	1-163-989-11	CERAMIC CHIP	0.033UF	10.00%	25V
C513	1-163-031-91	CERAMIC CHIP	0.01UF		50V
C514	1-106-383-00	MYLAR	0.047UF	10.00%	200V
C517	1-164-182-11	CERAMIC CHIP	0.0033UF	10.00%	50V
C518	1-104-665-11	ELECT	100UF	20.00%	10V
C519	1-102-212-00	CERAMIC	820PF	10.00%	500V
C521	1-126-934-11	ELECT	220UF	20.00%	16V
C522	1-126-933-11	ELECT	100UF	20.00%	16V

REF NO.	PART NO.	DESCRIPTION		REMARK	
C523	1-102-002-00	CERAMIC	680PF	10.00%	500V
C524	1-126-967-11	ELECT	47UF	20.00%	50V
C526	1-130-495-00	MYLAR	0.1UF	5.00%	50V
C527	1-136-153-00	FILM	0.01UF	5.00%	50V
C528	1-162-134-11	CERAMIC	470PF	10.00%	2KV
C530	1-137-372-11	MYLAR	0.022UF	5.00%	50V
C531	1-126-967-11	ELECT	47UF	20.00%	50V
C534	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C536	1-130-495-00	MYLAR	0.1UF	5.00%	50V
C537	1-126-969-11	ELECT	220UF	20.00%	50V
C538	1-117-657-21	FILM	8500PF	3.00%	1.2KV
C539	1-129-746-91	FILM	0.039UF	5.00%	400V
C540	1-137-194-81	FILM	0.47UF	5.00%	50V
C549	1-163-017-00	CERAMIC CHIP	0.0047UF	10.00%	50V
C550	1-106-220-00	MYLAR	0.1UF	10.00%	100V
C551	1-126-960-11	ELECT	1UF	20.00%	50V
C552	1-162-116-00	CERAMIC	680PF	10.00%	2KV
C553	1-162-116-00	CERAMIC	680PF	10.00%	2KV
C554	1-137-417-11	MYLAR	0.0047UF	10.00%	200V
C556	1-104-666-11	ELECT	220UF	20.00%	25V
C557	1-104-666-11	ELECT	220UF	20.00%	25V
C558	1-123-024-21	ELECT	33UF		160V
C560	1-102-228-00	CERAMIC	470PF	10.00%	500V
C561	1-129-708-91	FILM	0.0033UF	5.00%	630V
C562	1-102-228-00	CERAMIC	470PF	10.00%	500V
C564	1-163-038-91	CERAMIC CHIP	0.1UF		25V
C565	1-107-655-11	ELECT	47UF	20.00%	250V
C566	1-102-244-00	CERAMIC	220PF	10.00%	500V
C567	1-115-521-11	FILM	0.82UF	5.00%	250V
C568	1-102-228-00	CERAMIC	470PF	10.00%	500V
C570	1-115-520-11	FILM	0.68UF	5.00%	250V
C573	1-106-375-12	MYLAR	0.022UF	99%	200V
C574	1-107-636-11	ELECT	10UF	20.00%	160V
C576	1-130-495-00	MYLAR	0.1UF	5.00%	50V
C577	1-106-395-00	MYLAR	0.15UF	10.00%	200V
C582	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C586	1-216-295-91	SHORT	0		
C600	⚠ 1-104-705-51	MYLAR	0.1UF	20.00%	250V
C602	⚠ 1-104-705-51	MYLAR	0.1UF	20.00%	250V
C604	1-163-009-91	CERAMIC CHIP	0.001UF	10.00%	50V
C605	⚠ 1-127-942-51	CERAMIC	330PF	10%	250V
C606	⚠ 1-127-942-51	CERAMIC	330PF	10%	250V
C607	1-161-830-00	CERAMIC	0.0047UF	99%	500V
C608	1-161-830-00	CERAMIC	0.0047UF	99%	500V
C609	1-126-968-11	ELECT	100UF	20.00%	50V
C610	1-126-964-11	ELECT	10UF	20.00%	50V
C611	1-161-830-00	CERAMIC	0.0047UF	99%	500V
C612	1-161-830-51	CERAMIC	0.0047UF	99%	500V
C613	1-117-752-11	ELECT(BLOCK)	330UF	20.00%	450V
C614	1-126-964-11	ELECT	10UF	20.00%	50V
C616	1-130-202-00	FILM	0.022UF	5.00%	400V
C617	1-107-792-11	CERAMIC	100PF	5.00%	1KV
C618	1-125-893-11	FILM	680PF	3.00%	1.5KV
C619	⚠ 1-119-886-51	CERAMIC	470PF	10.00%	250V
C620	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C621	1-102-114-00	CERAMIC	470PF	10.00%	50V
C622	1-102-074-00	CERAMIC	0.001UF	10.00%	50V
C623	1-104-665-11	ELECT	100UF	20.00%	25V
C624	1-104-331-11	CERAMIC	0.0022UF	10.00%	1KV
C627	1-102-002-00	CERAMIC	680PF	10.00%	500V

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REF NO.	PART NO.	DESCRIPTION		REMARK	
C628	1-126-942-61	ELECT	1000UF	20.00%	25V
C629	1-126-964-11	ELECT	10UF	20.00%	50V
C630	1-123-024-21	ELECT	33UF		160V
C633	1-104-999-11	MYLAR	0.1UF	10.00%	200V
C634	1-126-933-11	ELECT	100UF	20.00%	16V
C635	1-104-665-11	ELECT	100UF	20.00%	10V
C636	1-104-760-11	CERAMIC CHIP	0.047UF	10.00%	50V
C639	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C640	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C641	1-102-002-00	CERAMIC	680PF	10.00%	500V
C642	1-107-890-11	ELECT	2200UF	20.00%	25V
C643	1-104-665-11	ELECT	100UF	20.00%	10V
C644	1-104-331-11	CERAMIC	0.0022UF	10.00%	1KV
C645	1-137-605-11	MYLAR	0.01UF	10.00%	250V
C646	1-107-679-91	ELECT	10UF	20.00%	450V
C647	1-163-275-11	CERAMIC CHIP	0.001UF	5.00%	50V
C649	1-126-940-11	ELECT	330UF	20.00%	25V
C650	1-163-275-11	CERAMIC CHIP	0.001UF	5.00%	50V
C651	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C652	1-126-965-91	ELECT	22UF	20.00%	50V
C653	1-126-947-11	ELECT	47UF	20.00%	25V
C657	1-101-821-00	CERAMIC	0.0022UF		500V
C658	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C901	1-136-153-00	FILM	0.01UF	5.00%	50V
C902	1-136-153-00	FILM	0.01UF	5.00%	50V
C905	1-126-963-11	ELECT	4.7UF	20.00%	50V
C906	1-164-346-11	CERAMIC CHIP	1UF		16V
C907	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C908	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V
C909	1-164-346-11	CERAMIC CHIP	1UF		16V
C910	1-126-967-11	ELECT	47UF	20.00%	50V
C911	1-126-967-11	ELECT	47UF	20.00%	50V
C912	1-164-004-11	CERAMIC CHIP	0.1UF	10.00%	25V
C913	1-104-665-11	ELECT	100UF	20.00%	10V
C914	1-163-133-00	CERAMIC CHIP	470PF	5.00%	50V

<CONNECTOR>

CN104		1-695-915-11	TAB (CONTACT)
CN202	*	1-785-608-11	PIN, CONNECTOR 4P
CN203	*	1-564-506-11	PLUG, CONNECTOR 3P
CN204	*	1-564-506-11	PLUG, CONNECTOR 3P
CN305	*	1-564-509-11	PLUG, CONNECTOR 6P
CN306	*	1-564-510-11	PLUG, CONNECTOR 7P
CN505		1-564-507-11	PLUG, CONNECTOR 4P
CN507	*	1-564-507-11	PLUG, CONNECTOR 4P
CN601		1-580-843-11	PIN, CONNECTOR (POWER)
CN602	*	1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P
CN604	*	1-691-134-11	PIN, CONNECTOR (PC BOARD) 2P
CN609	*	1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P
CN901	*	1-564-507-11	PLUG, CONNECTOR 4P

<DIODE>

D001	8-719-081-97	MMDL914T1
D005	8-719-081-97	MMDL914T1
D006	8-719-081-97	MMDL914T1
D010	8-719-158-35	RD9.1S-B
D011	8-719-158-35	RD9.1S-B
D203	8-719-820-41	1SS302
D300	1-216-295-91	SHORT 0

REF NO.	PART NO.	DESCRIPTION		REMARK	
D301	8-719-081-97	MMDL914T1			
D306	8-719-081-97	MMDL914T1			
D307	8-719-081-97	MMDL914T1			
D308	8-719-081-97	MMDL914T1			
D309	8-719-159-10	RD5.1SB-T2			
D311	8-719-081-97	MMDL914T1			
D312	8-719-081-97	MMDL914T1			
D313	8-719-081-97	MMDL914T1			
D314	8-719-081-97	MMDL914T1			
D315	8-719-081-97	MMDL914T1			
D316	8-719-037-02	RD6.8SB-T1			
D320	8-719-158-35	RD9.1S-B			
D321	8-719-158-35	RD9.1S-B			
D401	8-719-158-35	RD9.1S-B			
D402	8-719-158-35	RD9.1S-B			
D403	8-719-158-35	RD9.1S-B			
D404	8-719-158-35	RD9.1S-B			
D405	8-719-158-35	RD9.1S-B			
D406	8-719-158-35	RD9.1S-B			
D504	8-719-302-43	EL1Z			
D505	8-719-081-97	MMDL914T1			
D506	8-719-911-19	1SS119-25			
D507	8-719-081-97	MMDL914T1			
D508	8-719-081-97	MMDL914T1			
D509	1-216-073-91	RES-CHIP	10K	5%	1/10W
D510	8-719-081-97	MMDL914T1			
D511	8-719-081-97	MMDL914T1			
D512	8-719-081-97	MMDL914T1			
D513	8-719-908-03	GP08D			
D517	8-719-312-71	RS3FS			
D518	8-719-900-26	ERD29-08J			
D521	8-719-302-43	EL1Z			
D522	8-719-302-43	EL1Z			
D523	8-719-302-43	EL1Z			
D527	8-719-908-03	GP08D			
D528	8-719-908-03	GP08D			
D531	8-719-081-97	MMDL914T1			
D532	8-719-081-97	MMDL914T1			
D534	1-216-295-91	SHORT	0		
D602	8-719-911-19	1SS119-25			
D603	8-719-150-92	RD33EB3T			
D604	8-719-028-72	RGP02-17EL-6433			
D605	8-719-510-22	D3SB60			
D606	8-719-108-18	5P-6M			
D607	8-719-081-97	MMDL914T1			
D608	8-719-110-53	RD20ES-B2			
D609	8-719-311-31	RU-1P			
D610	8-719-210-21	11EQS04			
D611	8-719-046-74	AU-01Z-V1			
D613	8-719-046-74	AU-01Z-V1			
D614	8-719-046-74	AU-01Z-V1			
D615	8-719-312-10	RU4AM-T3			
D618	8-719-067-18	RN4Z			
D620	8-719-110-72	RD30ESB2			
D623	8-719-083-83	DIODE UDZS-TE17-15B			
D624	8-719-081-97	MMDL914T1			
D625	8-719-977-28	DTZ10B			
D627	8-719-073-84	31DQ06-FC5			
D628	8-719-911-19	1SS119-25			
D631	8-719-068-00	ERC04-06SE			
D632	8-719-068-00	ERC04-06SE			

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REF NO.	PART NO.	DESCRIPTION	REMARK
D633	8-719-948-45	ERA22-08	
D634	8-719-081-97	MMDL914T1	
D635	8-719-081-97	MMDL914T1	
D636	8-719-510-02	D1NS4	
D637	8-719-109-96	RD6.8ES-B1	
D638	8-719-200-82	11ES2	
D901	8-719-158-35	RD9.1S-B	
D902	8-719-158-35	RD9.1S-B	
D903	8-719-158-35	RD9.1S-B	
D904	8-719-158-35	RD9.1S-B	
D905	8-719-158-35	RD9.1S-B	
D906	8-719-083-18	DIODE SPB-25MVWF	
		<CONNECTOR>	
DY1	* 1-580-798-11	CONNECTOR PIN (DY) 6P	
		<FERRITE BEAD>	
FB300	1-412-911-31	FERRITE 0UH	
FB501	1-410-397-21	FERRITE 1.1UH	
FB502	1-410-397-21	FERRITE 1.1UH	
FB600	1-410-397-21	FERRITE 1.1UH	
FB601	1-410-397-21	FERRITE 1.1UH	
FB602	1-410-397-21	FERRITE 1.1UH	
FB603	1-410-397-21	FERRITE 1.1UH	
FB604	1-412-911-31	FERRITE 0UH	
FB607	1-410-397-21	FERRITE 1.1UH	
FB608	1-412-911-31	FERRITE 0UH	
FB611	1-410-397-21	FERRITE 1.1UH	
FB613	1-410-397-21	FERRITE 1.1UH	
FB615	1-410-397-21	FERRITE 1.1UH	
		<IC>	
IC001	8-752-917-82	CXP86449-630S	
IC002	8-759-371-21	MM1319AFBE	
IC003	8-759-672-78	M24C08-BN6(A)	
IC201	8-759-336-30	TA8223K	
IC203	8-759-827-61	IC TDA7442D013TR	
IC301	8-752-095-72	CXA2159S	
IC302	8-759-672-27	TDA9183T	
IC502	8-759-700-07	NJM2903M	
IC503	8-759-835-98	IC AN5522	
IC601	8-749-013-75	STR-F6654	
IC602	8-749-920-61	SE-135N	
IC603	8-759-701-59	NJM78M09FA	
IC604	8-759-231-53	TA7805S	
IC901	8-742-134-01	SBX1981-51RP	
		<JACK>	
J401	1-779-850-11	JACK BLOCK, PIN 6P	
J901	1-770-786-11	JACK	
J902	1-770-329-11	JACK, PIN 3P	
		<CHIP CONDUCTOR>	
JR001	1-216-295-91	SHORT 0	
JR002	1-216-295-91	SHORT 0	
JR003	1-216-295-91	SHORT 0	

REF NO.	PART NO.	DESCRIPTION	REMARK
JR004	1-216-295-91	SHORT 0	
JR006	1-216-295-91	SHORT 0	
JR007	1-216-295-91	SHORT 0	
JR009	1-216-295-91	SHORT 0	
JR010	1-216-295-91	SHORT 0	
JR011	1-216-295-91	SHORT 0	
JR012	1-216-295-91	SHORT 0	
JR014	1-216-295-91	SHORT 0	
JR015	1-216-295-91	SHORT 0	
JR016	1-216-295-91	SHORT 0	
JR019	1-216-295-91	SHORT 0	
JR020	1-216-295-91	SHORT 0	
JR022	1-216-295-91	SHORT 0	
JR023	1-216-295-91	SHORT 0	
JR024	1-216-295-91	SHORT 0	
JR025	1-216-295-91	SHORT 0	
JR028	1-216-295-91	SHORT 0	
JR102	1-216-295-91	SHORT 0	
JR109	1-216-295-91	SHORT 0	
JR112	1-216-295-91	SHORT 0	
JR202	1-216-295-91	SHORT 0	
JR204	1-216-295-91	SHORT 0	
JR213	1-216-295-91	SHORT 0	
JR214	1-216-295-91	SHORT 0	
JR300	1-216-295-91	SHORT 0	
JR304	1-216-295-91	SHORT 0	
JR308	1-216-295-91	SHORT 0	
JR309	1-216-295-91	SHORT 0	
JR310	1-216-295-91	SHORT 0	
JR311	1-216-295-91	SHORT 0	
JR312	1-216-295-91	SHORT 0	
JR400	1-216-295-91	SHORT 0	
JR401	1-216-295-91	SHORT 0	
JR403	1-216-295-91	SHORT 0	
JR404	1-216-295-91	SHORT 0	
JR405	1-216-295-91	SHORT 0	
JR500	1-216-295-91	SHORT 0	
JR501	1-216-295-91	SHORT 0	
JR503	1-216-295-91	SHORT 0	
JR505	1-216-295-91	SHORT 0	
JR600	1-216-295-91	SHORT 0	
		<COIL>	
L002	1-414-856-11	INDUCTOR 10UH	
L003	1-414-180-11	INDUCTOR 3.3UH	
L005	1-414-233-22	FERRITE 0UH	
L101	1-414-856-11	INDUCTOR 10UH	
L102	1-414-856-11	INDUCTOR 10UH	
L103	1-414-856-11	INDUCTOR 10UH	
L104	1-414-856-11	INDUCTOR 10UH	
L105	1-414-856-11	INDUCTOR 10UH	
L204	1-414-856-11	INDUCTOR 10UH	
L301	1-414-189-31	INDUCTOR 100UH	
L302	1-414-185-41	INDUCTOR 22UH	
L303	1-414-189-31	INDUCTOR 100UH	
L304	1-414-189-31	INDUCTOR 100UH	
L501	1-412-525-31	INDUCTOR 10UH	
L502	1-422-613-11	COIL, AIR-CORE	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

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REF NO.	PART NO.	DESCRIPTION	REMARK
L503	1-412-525-31	INDUCTOR 10UH	
L504	1-412-525-31	INDUCTOR 10UH	
L505	1-412-525-31	INDUCTOR 10UH	
L506	1-412-525-31	INDUCTOR 10UH	
L507	1-416-931-11	INDUCTOR 0UH	
L509	1-416-932-11	INDUCTOR 0UH	
L510	1-416-972-11	COIL, HORIZONTAL LINEARITY	
L513	1-412-551-31	INDUCTOR 1.5MH	
L515	1-459-104-00	COIL, CHOKE 10MMH	
L518	1-414-187-11	INDUCTOR 47UH	
L601	1-412-527-11	INDUCTOR 15UH	
L901	1-408-603-31	INDUCTOR 10UH	
L902	1-408-603-31	INDUCTOR 10UH	
L905	1-414-856-11	INDUCTOR 10UH	
		<PHOTO COUPLER>	
PH600	⚠ 8-749-924-35	ON3171-R	
		<IC LINK>	
PS200	1-532-675-21	LINK, IC 1.5A/150V	
		<TRANSISTOR>	
Q002	8-729-230-49	2SC2712-YG	
Q101	8-729-230-49	2SC2712-YG	
Q201	8-729-424-67	UN2216	
Q202	8-729-424-67	UN2216	
Q205	8-729-421-19	UN2213	
Q206	8-729-421-19	UN2213	
Q207	8-729-421-19	UN2213	
Q301	8-729-216-22	2SA1162-G	
Q302	8-729-230-49	2SC2712-YG	
Q303	8-729-216-22	2SA1162-G	
Q305	8-729-216-22	2SA1162-G	
Q306	8-729-230-49	2SC2712-YG	
Q307	8-729-230-49	2SC2712-YG	
Q308	8-729-216-22	2SA1162-G	
Q312	8-729-216-22	2SA1162-G	
Q313	8-729-230-49	2SC2712-YG	
Q314	8-729-216-22	2SA1162-G	
Q315	8-729-421-19	UN2213	
Q316	8-729-216-22	2SA1162-G	
Q317	8-729-216-22	2SA1162-G	
Q401	8-729-424-67	UN2216	
Q402	8-729-424-67	UN2216	
Q403	8-729-216-22	2SA1162-G	
Q404	8-729-216-22	2SA1162-G	
Q503	8-729-230-49	2SC2712-YG	
Q505	8-729-931-45	IRF614	
Q506	8-729-140-96	2SD774-34	
Q507	8-729-216-22	2SA1162-G	
Q509	8-729-230-49	2SC2712-YG	
Q511	8-729-048-07	2SD2578-CA	
Q601	8-729-023-22	2SD2114K	
Q602	8-729-230-49	2SC2712-YG	
Q603	8-729-027-23	DTA114EKA-T146	
Q604	8-729-200-17	2SA1091-O	
Q605	8-729-044-30	2SK2845-LB102	
Q606	8-729-230-49	2SC2712-YG	
Q607	8-729-922-37	2SD2144S-UVW	
Q608	8-729-230-49	2SC2712-YG	
Q901	1-801-806-11	TR DTC144EKA	
Q901	8-729-421-19	UN2213	
Q902	8-729-421-19	UN2213	
		<RESISTOR>	
R001	1-414-233-22	FERRITE 0UH	
R002	1-216-025-11	RES-CHIP 100 5% 1/10W	
R003	1-216-073-91	RES-CHIP 10K 5% 1/10W	
R004	1-216-025-11	RES-CHIP 100 5% 1/10W	
R005	1-216-025-11	RES-CHIP 100 5% 1/10W	
R006	8-719-069-60	UDZSTE-179.1B	
R006	8-719-158-35	RD9.1S-B	
R007	1-216-295-91	SHORT 0	
R008	1-216-065-91	RES-CHIP 4.7K 5% 1/10W	
R010	1-216-065-91	RES-CHIP 4.7K 5% 1/10W	
R011	1-216-065-91	RES-CHIP 4.7K 5% 1/10W	
R012	1-216-065-91	RES-CHIP 4.7K 5% 1/10W	
R013	1-216-065-91	RES-CHIP 4.7K 5% 1/10W	
R014	1-216-025-11	RES-CHIP 100 5% 1/10W	
R015	1-216-025-11	RES-CHIP 100 5% 1/10W	
R017	1-216-049-11	RES-CHIP 1K 5% 1/10W	
R018	1-216-033-00	RES-CHIP 220 5% 1/10W	
R019	1-216-073-91	RES-CHIP 10K 5% 1/10W	
R020	1-216-045-00	RES-CHIP 680 5% 1/10W	
R021	1-216-073-91	RES-CHIP 10K 5% 1/10W	
R022	1-216-295-91	SHORT 0	
R024	1-216-057-00	RES-CHIP 2.2K 5% 1/10W	
R025	1-216-057-00	RES-CHIP 2.2K 5% 1/10W	
R026	1-216-057-00	RES-CHIP 2.2K 5% 1/10W	
R027	1-216-073-91	RES-CHIP 10K 5% 1/10W	
R029	1-216-049-11	RES-CHIP 1K 5% 1/10W	
R031	1-216-049-11	RES-CHIP 1K 5% 1/10W	
R035	1-216-025-11	RES-CHIP 100 5% 1/10W	
R036	1-216-025-11	RES-CHIP 100 5% 1/10W	
R037	1-216-025-11	RES-CHIP 100 5% 1/10W	
R040	1-216-025-11	RES-CHIP 100 5% 1/10W	
R041	1-216-025-11	RES-CHIP 100 5% 1/10W	
R042	1-216-295-91	SHORT 0	
R043	1-216-049-11	RES-CHIP 1K 5% 1/10W	
R044	1-216-025-11	RES-CHIP 100 5% 1/10W	
R045	1-216-025-11	RES-CHIP 100 5% 1/10W	
R046	1-216-049-11	RES-CHIP 1K 5% 1/10W	
R047	1-414-233-22	FERRITE 0UH	
R048	1-216-073-91	RES-CHIP 10K 5% 1/10W	
R050	1-216-073-91	RES-CHIP 10K 5% 1/10W	
R053	1-216-049-11	RES-CHIP 1K 5% 1/10W	
R058	1-216-295-91	SHORT 0	
R059	1-216-295-91	SHORT 0	
R060	1-216-295-91	SHORT 0	
R061	1-216-033-00	RES-CHIP 220 5% 1/10W	
R062	1-216-041-00	RES-CHIP 470 5% 1/10W	
R063	1-216-037-00	RES-CHIP 330 5% 1/10W	
R064	1-216-037-00	RES-CHIP 330 5% 1/10W	
R065	1-216-037-00	RES-CHIP 330 5% 1/10W	
R066	1-216-049-11	RES-CHIP 1K 5% 1/10W	
R067	1-216-049-11	RES-CHIP 1K 5% 1/10W	
R068	1-216-041-00	RES-CHIP 470 5% 1/10W	

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REF NO.	PART NO.	DESCRIPTION		REMARK	
R105	1-216-295-91	SHORT	0		
R109	1-216-041-00	RES-CHIP	470	5%	1/10W
R111	1-216-025-11	RES-CHIP	100	5%	1/10W
R112	1-216-025-11	RES-CHIP	100	5%	1/10W
R113	1-216-047-91	RES-CHIP	820	5%	1/10W
R202	1-216-053-00	RES-CHIP	1.5K	5%	1/10W
R203	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R204	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R205	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R206	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R207	1-216-053-00	RES-CHIP	1.5K	5%	1/10W
R208	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R209	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R210	1-216-029-00	RES-CHIP	150	5%	1/10W
R212	1-216-029-00	RES-CHIP	150	5%	1/10W
R225	1-216-033-00	RES-CHIP	220	5%	1/10W
R226	1-216-033-00	RES-CHIP	220	5%	1/10W
R227	1-216-033-00	RES-CHIP	220	5%	1/10W
R228	1-249-389-11	CARBON	4.7	5%	1/4W
R229	1-216-073-91	RES-CHIP	10K	5%	1/10W
R230	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R231	1-216-295-91	SHORT	0		
R234	1-249-389-11	CARBON	4.7	5%	1/4W
R237	1-216-308-00	RES-CHIP	4.7	5%	1/10W
R238	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R239	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R242	1-216-025-11	RES-CHIP	100	5%	1/10W
R243	1-216-025-11	RES-CHIP	100	5%	1/10W
R246	1-216-067-00	RES-CHIP	5.6K	5%	1/10W
R247	1-216-067-00	RES-CHIP	5.6K	5%	1/10W
R301	1-216-073-91	RES-CHIP	10K	5%	1/10W
R302	1-216-295-91	SHORT	0		
R303	1-216-049-11	RES-CHIP	1K	5%	1/10W
R304	1-216-073-91	RES-CHIP	10K	5%	1/10W
R305	1-216-049-11	RES-CHIP	1K	5%	1/10W
R306	1-216-077-91	RES-CHIP	15K	5%	1/10W
R308	1-216-025-11	RES-CHIP	100	5%	1/10W
R309	1-216-025-11	RES-CHIP	100	5%	1/10W
R310	1-216-025-11	RES-CHIP	100	5%	1/10W
R311	1-216-041-00	RES-CHIP	470	5%	1/10W
R312	1-216-039-00	RES-CHIP	390	5%	1/10W
R313	1-216-037-00	RES-CHIP	330	5%	1/10W
R314	1-216-083-00	RES-CHIP	27K	5%	1/10W
R316	1-216-037-00	RES-CHIP	330	5%	1/10W
R317	1-216-091-00	RES-CHIP	56K	5%	1/10W
R318	1-216-039-00	RES-CHIP	390	5%	1/10W
R319	1-216-025-11	RES-CHIP	100	5%	1/10W
R320	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R321	1-216-073-91	RES-CHIP	10K	5%	1/10W
R322	1-216-033-00	RES-CHIP	220	5%	1/10W
R323	1-216-053-00	RES-CHIP	1.5K	5%	1/10W
R324	1-216-053-00	RES-CHIP	1.5K	5%	1/10W
R325	1-216-041-00	RES-CHIP	470	5%	1/10W
R331	1-216-295-91	SHORT	0		
R332	1-216-033-00	RES-CHIP	220	5%	1/10W
R333	1-216-073-91	RES-CHIP	10K	5%	1/10W
R334	1-216-127-11	RES-CHIP	1.8M	5%	1/10W
R335	1-216-045-00	RES-CHIP	680	5%	1/10W
R338	1-216-033-00	RES-CHIP	220	5%	1/10W
R340	1-216-025-11	RES-CHIP	100	5%	1/10W
R345	1-216-081-00	RES-CHIP	22K	5%	1/10W

REF NO.	PART NO.	DESCRIPTION		REMARK	
R348	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R349	1-216-073-91	RES-CHIP	10K	5%	1/10W
R350	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R351	1-216-053-00	RES-CHIP	1.5K	5%	1/10W
R354	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R355	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R356	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R357	1-216-079-00	RES-CHIP	18K	5%	1/10W
R358	1-216-049-11	RES-CHIP	1K	5%	1/10W
R359	1-216-033-00	RES-CHIP	220	5%	1/10W
R360	1-216-033-00	RES-CHIP	220	5%	1/10W
R361	1-216-073-91	RES-CHIP	10K	5%	1/10W
R362	1-216-075-00	RES-CHIP	12K	5%	1/10W
R363	1-216-079-00	RES-CHIP	18K	5%	1/10W
R364	1-216-295-91	SHORT	0		
R365	1-216-033-00	RES-CHIP	220	5%	1/10W
R366	1-216-073-91	RES-CHIP	10K	5%	1/10W
R367	1-216-073-91	RES-CHIP	10K	5%	1/10W
R370	1-216-033-00	RES-CHIP	220	5%	1/10W
R371	1-216-083-00	RES-CHIP	27K	5%	1/10W
R372	1-216-091-00	RES-CHIP	56K	5%	1/10W
R376	1-216-081-00	RES-CHIP	22K	5%	1/10W
R377	1-216-121-11	RES-CHIP	1M	5%	1/10W
R378	1-216-053-00	RES-CHIP	1.5K	5%	1/10W
R379	1-218-179-11	RES-CHIP	10M	5%	1/10W
R380	1-216-041-00	RES-CHIP	470	5%	1/10W
R383	1-216-049-11	RES-CHIP	1K	5%	1/10W
R384	1-216-295-91	SHORT	0		
R385	1-216-033-00	RES-CHIP	220	5%	1/10W
R391	1-216-049-11	RES-CHIP	1K	5%	1/10W
R401	1-216-049-11	RES-CHIP	1K	5%	1/10W
R402	1-216-073-91	RES-CHIP	10K	5%	1/10W
R403	1-216-073-91	RES-CHIP	10K	5%	1/10W
R404	1-216-073-91	RES-CHIP	10K	5%	1/10W
R405	1-216-049-11	RES-CHIP	1K	5%	1/10W
R406	1-216-073-91	RES-CHIP	10K	5%	1/10W
R407	1-216-049-11	RES-CHIP	1K	5%	1/10W
R408	1-216-049-11	RES-CHIP	1K	5%	1/10W
R409	1-216-041-00	RES-CHIP	470	5%	1/10W
R410	1-216-113-00	RES-CHIP	470K	5%	1/10W
R411	1-216-113-00	RES-CHIP	470K	5%	1/10W
R412	1-216-041-00	RES-CHIP	470	5%	1/10W
R413	1-216-021-00	RES-CHIP	68	5%	1/10W
R414	1-216-113-00	RES-CHIP	470K	5%	1/10W
R415	1-216-113-00	RES-CHIP	470K	5%	1/10W
R416	1-216-077-91	RES-CHIP	15K	5%	1/10W
R417	1-216-077-91	RES-CHIP	15K	5%	1/10W
R418	1-216-113-00	RES-CHIP	470K	5%	1/10W
R419	1-216-022-00	RES-CHIP	75	5%	1/10W
R426	1-216-033-00	RES-CHIP	220	5%	1/10W
R505	1-216-099-00	RES-CHIP	120K	5%	1/10W
R506	1-216-085-91	RES-CHIP	33K	5%	1/10W
R507	1-249-389-11	CARBON	4.7	5%	1/4W
R508	1-215-910-00	METAL OXIDE	68	5%	3W
R509	1-215-911-11	METAL OXIDE	100	5%	3W
R510	1-215-885-00	METAL OXIDE	68	5%	2W
R511	1-215-911-11	METAL OXIDE	100	5%	3W
R516	1-216-081-00	RES-CHIP	22K	5%	1/10W
R518	1-247-807-31	CARBON	100	5%	1/4W
R520	1-215-445-00	METAL	10K	1%	1/4W

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

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REF NO.	PART NO.	DESCRIPTION		REMARK	
R522	1-208-806-11	METAL CHIP	10K	0.5%	1/10W
R523	1-249-411-11	CARBON	330	5%	1/4W
R525	1-208-830-11	METAL CHIP	100K	0.5%	1/10W
R526	1-208-798-11	METAL CHIP	4.7K	0.5%	1/10W
R527	1-216-001-00	RES-CHIP	10	5%	1/10W
R528	1-208-814-91	METAL CHIP	22K	0.5%	1/10W
R529	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R531	1-247-843-11	CARBON	3.3K	5%	1/4W
R533	1-249-417-11	CARBON	1K	5%	1/4W
R534	1-216-361-00	METAL OXIDE	0.22	5%	2W
R535	1-216-067-00	RES-CHIP	5.6K	5%	1/10W
R536	1-216-067-00	RES-CHIP	5.6K	5%	1/10W
R537	1-208-814-91	METAL CHIP	22K	0.5%	1/10W
R540	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R541	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R542	1-216-295-91	SHORT	0		
R543	1-216-437-00	METAL OXIDE	5.6K	5%	1W
R544	1-215-894-11	METAL OXIDE	2.2K	5%	2W
R545	1-216-077-91	RES-CHIP	15K	5%	1/10W
R546	1-216-077-91	RES-CHIP	15K	5%	1/10W
R547	1-216-085-91	RES-CHIP	33K	5%	1/10W
R549	1-215-451-00	METAL	18K	1%	1/4W
R550	1-216-097-11	RES-CHIP	100K	5%	1/10W
R551	1-249-421-11	CARBON	2.2K	5%	1/4W
R552	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R553	1-215-457-00	METAL	33K	1%	1/4W
R554	1-215-457-00	METAL	33K	1%	1/4W
R556	1-215-437-00	METAL	4.7K	1%	1/4W
R558	1-249-421-11	CARBON	2.2K	5%	1/4W
R559	1-249-429-11	CARBON	10K	5%	1/4W
R560	1-216-073-91	RES-CHIP	10K	5%	1/10W
R562	1-249-401-11	CARBON	47	5%	1/4W
R565	1-216-073-91	RES-CHIP	10K	5%	1/10W
R567	1-216-105-91	RES-CHIP	220K	5%	1/10W
R569	1-249-385-11	CARBON	2.2	5%	1/4W
R570	1-216-069-00	RES-CHIP	6.8K	5%	1/10W
R571	1-215-437-00	METAL	4.7K	1%	1/4W
R573	1-216-089-91	RES-CHIP	47K	5%	1/10W
R577	1-215-888-00	METAL OXIDE	220	5%	2W
R578	1-216-349-00	METAL OXIDE	1	5%	1W
R579	1-216-097-11	RES-CHIP	100K	5%	1/10W
R580	1-208-830-11	METAL CHIP	100K	0.5%	1/10W
R581	1-208-794-11	METAL CHIP	3.3K	0.5%	1/10W
R582	1-208-846-11	METAL CHIP	470K	0.5%	1/10W
R584	1-216-295-91	SHORT	0		
R585	1-249-391-11	CARBON	6.8	5%	1/4W
R587	1-208-834-11	METAL CHIP	150K	0.5%	1/10W
R588	1-215-888-00	METAL OXIDE	220	5%	2W
R589	1-215-888-00	METAL OXIDE	220	5%	2W
R590	1-215-465-00	METAL	68K	1%	1/4W
R591	1-260-288-11	CARBON	0.47	5%	1/2W
R593	1-260-288-11	CARBON	0.47	5%	1/2W
R594	1-260-288-11	CARBON	0.47	5%	1/2W
R596	1-215-921-11	METAL OXIDE	4.7K	5%	3W
R597	1-247-750-11	CARBON	680	5%	1/2W
R598	1-249-438-11	CARBON	56K	5%	1/4W
R599	1-249-389-11	CARBON	4.7	5%	1/4W
R600	1-249-438-11	CARBON	56K	5%	1/4W
R601	1-249-418-11	CARBON	1.2K	5%	1/4W
R602	1-249-389-11	CARBON	4.7	5%	1/4W
R603	1-215-485-00	METAL	470K	1%	1/4W
R604	1-216-097-11	RES-CHIP	100K	5%	1/10W

REF NO.	PART NO.	DESCRIPTION		REMARK	
R607	1-249-425-11	CARBON	4.7K	5%	1/4W
R608	1-240-205-91	CARBON	22M	5%	1/2W
R609	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R610	1-216-073-91	RES-CHIP	10K	5%	1/10W
R611	1-216-089-91	RES-CHIP	47K	5%	1/10W
R612	1-216-045-00	RES-CHIP	680	5%	1/10W
R614	1-216-041-00	RES-CHIP	470	5%	1/10W
R615	1-216-350-11	METAL OXIDE	1.2	5%	1W
R616	1-260-302-51	CARBON	6.8	5%	1/2W
R617	1-247-791-91	CARBON	22	5%	1/4W
R619	1-260-128-91	CARBON	270K	5%	1/2W
R620	1-215-915-11	METAL OXIDE	470	5%	3W
R622	1-215-908-00	METAL OXIDE	33	5%	3W
R623	1-216-095-00	RES-CHIP	82K	5%	1/10W
R624	1-216-089-91	RES-CHIP	47K	5%	1/10W
R626	1-216-049-11	RES-CHIP	1K	5%	1/10W
R627	1-240-251-11	CEMENTED	6.8	5%	10W
R629	1-247-747-11	CARBON	470	5%	1/2W
R630	1-249-429-11	CARBON	10K	5%	1/4W
R631	1-216-089-91	RES-CHIP	47K	5%	1/10W
R632	1-202-933-61	FUSIBLE	0.1	10%	1/2W
R634	⚠ 1-240-917-91	METAL	8.2M	5%	1W
R635	1-216-492-11	METAL OXIDE	82K	5%	3W
R636	1-215-924-00	METAL OXIDE	15K	5%	3W
R637	1-216-492-11	METAL OXIDE	82K	5%	3W
R639	1-216-363-00	METAL OXIDE	0.33	5%	2W
R640	1-249-415-11	CARBON	680	5%	1/4W
R641	1-216-362-11	METAL OXIDE	0.27	5%	2W
R642	1-249-419-11	CARBON	1.5K	5%	1/4W
R643	1-247-843-11	CARBON	3.3K	5%	1/4W
R644	1-249-419-11	CARBON	1.5K	5%	1/4W
R646	1-215-924-00	METAL OXIDE	15K	5%	3W
R647	1-249-401-11	CARBON	47	5%	1/4W
R648	1-216-057-00	RES-CHIP	2.2K	5%	1/10W
R649	1-249-417-11	CARBON	1K	5%	1/4W
R650	1-215-882-00	METAL OXIDE	22	5%	2W
R652	1-215-925-11	METAL OXIDE	22K	5%	3W
R653	1-215-873-00	METAL OXIDE	4.7K	5%	1W
R657	1-260-127-11	CARBON	220K	5%	1/2W
R659	1-216-049-11	RES-CHIP	1K	5%	1/10W
R660	1-216-073-91	RES-CHIP	10K	5%	1/10W
R661	1-215-873-00	METAL OXIDE	4.7K	5%	1W
R680	1-216-308-00	RES-CHIP	4.7	5%	1/10W
R901	1-249-411-11	CARBON	330	5%	1/4W
R902	1-249-411-11	CARBON	330	5%	1/4W
R903	1-216-022-00	RES-CHIP	75	5%	1/10W
R904	1-216-033-00	RES-CHIP	220	5%	1/10W
R905	1-216-113-00	RES-CHIP	470K	5%	1/10W
R906	1-216-025-11	RES-CHIP	100	5%	1/10W
R907	1-216-113-00	RES-CHIP	470K	5%	1/10W
R908	1-216-025-11	RES-CHIP	100	5%	1/10W
R909	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R910	1-216-065-91	RES-CHIP	4.7K	5%	1/10W
R911	1-216-067-00	RES-CHIP	5.6K	5%	1/10W
R912	1-216-041-00	RES-CHIP	470	5%	1/10W
R913	1-216-049-11	RES-CHIP	1K	5%	1/10W
R914	1-216-055-00	RES-CHIP	1.8K	5%	1/10W
R915	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R916	1-216-017-91	RES-CHIP	47	5%	1/10W
R917	1-216-041-00	RES-CHIP	470	5%	1/10W
R918	1-216-041-00	RES-CHIP	470	5%	1/10W

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

A **C1**

REF NO.		PART NO.	DESCRIPTION	REMARK
			<RELAY>	
RY601	⚠	1-755-214-11	RELAY, AC POWER	
			<SWITCH>	
S502		1-572-707-11	SWITCH, LEVER	
S600	⚠	1-571-433-31	SWITCH, PUSH (AC POWER)	
S901		1-692-431-21	SWITCH, TACTILE	
S902		1-692-431-21	SWITCH, TACTILE	
S903		1-692-431-21	SWITCH, TACTILE	
S904		1-692-431-21	SWITCH, TACTILE	
S905		1-692-431-21	SWITCH, TACTILE	
S906		1-692-431-21	SWITCH, TACTILE	
S907		1-692-431-21	SWITCH, TACTILE	
			<TRANSFORMER>	
T501		1-437-195-11	TRANSFORMER, HORIZONTAL DRIVE	
T503	⚠	1-453-293-11	TRANSFORMER ASSY FLYBACK (NX-1748/M3A4)	
T601		1-435-212-11	TRANSFORMER, LINE FILTER	
T603	⚠	1-433-513-31	TRANSFORMER, CONVERTER (SRT)	
T604	⚠	1-431-852-11	TRANSFORMER, CONVERTER (SRT)	
			<THERMISTOR>	
TH600		1-803-586-11	THERMISTOR, NTC	
			<THERMISTOR>	
THP600!		1-803-951-11	THERMISTOR, PTC	
			<TUNER>	
TU101		8-598-449-10	TUNER, FSS BTF-LG433	
			<CRYSTAL>	
X001		1-579-125-11	VIBRATOR, CERAMIC	
X301		1-781-134-21	VIBRATOR, CRYSTAL	
X302		1-781-132-21	VIBRATOR, CRYSTAL	

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*	A-1332-180-A	C1 BOARD MOUNTED	
		**********	
	4-048-960-71	HEAT SINK(D4)	
	7-682-948-01	SCREW +PSW 3X8	
		<CAPACITOR>	
C700	1-102-074-00	CERAMIC	0.001UF 10.00% 50V
C701	1-126-933-11	ELECT	100UF 20.00% 16V
C702	1-102-114-00	CERAMIC	470PF 10.00% 50V
C703	1-110-389-11	FILM	0.1UF 5% 250V
C705	1-162-114-00	CERAMIC	0.0047UF 2KV
C706	1-130-202-00	FILM	0.022UF 5.00% 400V
C707	1-107-651-11	ELECT	4.7UF 20.00% 250V

REF NO.	PART NO.	DESCRIPTION			REMARK
C1803	1-126-964-11	ELECT	10UF	20.00%	50V
C1804	1-126-964-11	ELECT	10UF	20.00%	50V
C1809	1-126-942-61	ELECT	1000UF	20.00%	25V
C5952	1-107-616-11	CERAMIC	150PF	10.00%	500V
C5954	1-102-112-00	CERAMIC	330PF	10.00%	50V
C5955	1-126-947-11	ELECT	47UF	20.00%	16V
C5961	1-161-830-00	CERAMIC	0.0047UF		500V
C5962	1-130-491-00	MYLAR	0.047UF	5.00%	50V
C5963	1-107-638-11	ELECT	33UF	20.00%	160V
C5964	1-126-935-11	ELECT	470UF	20.00%	10V
C5968	1-106-383-00	MYLAR	0.047UF	10.00%	200V
C5969	1-107-949-11	ELECT	2.2UF	20.00%	160V
C5970	1-104-999-11	MYLAR	0.1UF	10.00%	200V
C5972	1-126-935-11	ELECT	470UF	20.00%	16V
C5973	1-130-491-00	MYLAR	0.047UF	5.00%	50V
C5975	1-126-935-11	ELECT	470UF	20.00%	10V
C5978	1-130-471-00	MYLAR	0.001UF	5.00%	50V
C5979	1-130-471-00	MYLAR	0.001UF	5.00%	50V
C5980	1-126-947-11	ELECT	47UF	20.00%	10V
		<CONNECTOR>			
CN700	1-695-915-11	TAB (CONTACT)			
CN701 *	1-564-509-11	PLUG, CONNECTOR 6P			
CN703	1-695-915-11	TAB (CONTACT)			
CN706	1-564-507-11	PLUG, CONNECTOR 4P			
CN1801 *	1-564-507-11	PLUG, CONNECTOR 4P			
CN1802 *	1-564-506-11	PLUG, CONNECTOR 3P			
CN5961 *	1-564-510-11	PLUG, CONNECTOR 7P			
CN5962 *	1-564-506-11	PLUG, CONNECTOR 3P			
		<DIODE>			
D704	8-719-911-19	1SS119-25			
D705	8-719-911-19	1SS119-25			
D707	8-719-051-85	HSS83TD			
D708	8-719-051-85	HSS83TD			
D709	8-719-051-85	HSS83TD			
D1803	8-719-911-19	1SS119-25			
D1804	8-719-911-19	1SS119-25			
D1808	8-719-908-03	GP08D			
D5964	8-719-911-19	1SS119-25			
D5967	8-719-110-86	RD39ES-B			
D5968	8-719-110-86	RD39ES-B			
		<IC>			
IC700	8-759-712-99	IC TDA6107Q/N2			
IC1800	8-759-822-38	LA6510			
		<JACK>			
J701	⚠ 1-540-071-22	SOCKET, CRT			
		<COIL>			
L705	1-414-186-31	INDUCTOR	33UH		
L707	1-414-186-31	INDUCTOR	33UH		
L708	1-410-667-31	INDUCTOR	22UH		
L5961	1-414-187-11	INDUCTOR	47UH		

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

C1 F

REF NO.	PART NO.	DESCRIPTION			REMARK
		<TRANSISTOR>			
Q700	8-729-119-76	2SA1175-HFE			
Q1802	8-729-119-78	2SC2785-HFE			
Q5961	8-729-423-33	2SC3311A-QRSTA			
Q5962	8-729-423-33	2SC3311A-QRSTA			
Q5963	8-729-017-05	2SA1837			
Q5965	8-729-017-06	2SC4793			
Q5967	8-729-423-33	2SC3311A-QRSTA			
Q5968	8-729-119-76	2SA1175-HFE			
		<RESISTOR>			
R700	1-219-743-11	CARBON	100	5%	1/2W
R703	1-247-807-31	CARBON	100	5%	1/4W
R704	1-247-807-31	CARBON	100	5%	1/4W
R705	1-247-807-31	CARBON	100	5%	1/4W
R709	1-219-746-11	CARBON	1K	5%	1/2W
R710	1-219-746-11	CARBON	1K	5%	1/2W
R711	1-219-746-11	CARBON	1K	5%	1/2W
R712	1-219-752-11	CARBON	100K	5%	1/2W
R713	1-216-399-00	METAL OXIDE	6.8	5%	3W
R714	1-216-380-11	METAL OXIDE	8.2	5%	2W
R715	1-249-401-11	CARBON	47	5%	1/4W
R716	1-249-429-11	CARBON	10K	5%	1/4W
R717	1-247-807-31	CARBON	100	5%	1/4W
R718	1-249-428-11	CARBON	8.2K	5%	1/4W
R719	1-215-473-00	METAL	150K	1%	1/4W
R720	1-215-473-00	METAL	150K	1%	1/4W
R722	1-247-891-00	CARBON	330K	5%	1/4W
R1802	1-249-382-11	CARBON	1.2	5%	1/4W
R1803	1-249-382-11	CARBON	1.2	5%	1/4W
R1805	1-249-429-11	CARBON	10K	5%	1/4W
R1806	1-249-425-11	CARBON	4.7K	5%	1/4W
R1808	1-249-425-11	CARBON	4.7K	5%	1/4W
R1809	1-249-435-11	CARBON	33K	5%	1/4W
R1810	1-249-435-11	CARBON	33K	5%	1/4W
R1811	1-249-440-11	CARBON	82K	5%	1/4W
R1812	1-249-435-11	CARBON	33K	5%	1/4W
R1821	1-249-440-11	CARBON	82K	5%	1/4W
R1822	1-249-435-11	CARBON	33K	5%	1/4W
R1823	1-249-426-11	CARBON	5.6K	5%	1/4W
R1824	1-249-435-11	CARBON	33K	5%	1/4W
R5950	1-249-401-11	CARBON	47	5%	1/4W
R5951	1-249-400-11	CARBON	39	5%	1/4W
R5952	1-249-398-11	CARBON	27	5%	1/4W
R5961	1-249-389-11	CARBON	4.7	5%	1/4W
R5962	1-247-807-31	CARBON	100	5%	1/4W
R5963	1-249-417-11	CARBON	1K	5%	1/4W
R5964	1-260-312-11	CARBON	47	5%	1/2W
R5965	1-249-414-11	CARBON	560	5%	1/4W
R5966	1-249-417-11	CARBON	1K	5%	1/4W
R5967	1-249-410-11	CARBON	270	5%	1/4W
R5968	1-249-417-11	CARBON	1K	5%	1/4W
R5969	1-249-383-11	CARBON	1.5	5%	1/4W
R5971	1-249-409-11	CARBON	220	5%	1/4W
R5972	1-249-432-11	CARBON	18K	5%	1/4W
R5973	1-249-403-11	CARBON	68	5%	1/4W
R5974	1-216-476-11	METAL OXIDE	180	5%	3W
R5975	1-249-417-11	CARBON	1K	5%	1/4W
R5976	1-249-432-11	CARBON	18K	5%	1/4W
R5977	1-249-429-11	CARBON	10K	5%	1/4W
R5978	1-247-807-31	CARBON	100	5%	1/4W
R5979	1-249-414-11	CARBON	560	5%	1/4W
R5980	1-247-807-31	CARBON	100	5%	1/4W
R5981	1-249-416-11	CARBON	820	5%	1/4W
R5982	1-249-383-11	CARBON	1.5	5%	1/4W
R5985	1-249-401-11	CARBON	47	5%	1/4W
R5986	1-249-397-11	CARBON	22	5%	1/4W
		<VARIABLE RESISTOR>			
RV700	1-241-656-11	RES, ADJ, METAL FILM 110M			
		<SPARK GAP>			
SG700	1-519-422-11	GAP, SPARK			
SG701	1-519-422-11	GAP, SPARK			
SG702	1-519-422-11	GAP, SPARK			

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	* A-1241-487-A	F BOARD MOUNTED			
		**********			
	1-533-223-11	CLIP, FUSE			
		<CAPACITOR>			
C654	⚠ 1-117-703-51	CERAMIC	0.0047UF	99%	250V
C4602	⚠ 1-104-708-51	MYLAR	0.47UF	20.00%	250V
		<CONNECTOR>			
CN4601	1-580-843-11	PIN, CONNECTOR (POWER)			
CN4602	1-580-843-11	PIN, CONNECTOR (POWER)			
CN4603	1-695-915-11	TAB (CONTACT)			
		<FUSE>			
F4601	⚠ 1-532-237-11	FUSE, TIME-LAG (BET) 3.15A/250V			
		<RESISTOR>			
R4601	⚠ 1-202-885-91	SOLID	1M	10%	1/2W
		<TRANSFORMER>			
T4601	1-429-640-11	TRANSFORMER, LINE FILTER			
T4602	1-429-640-11	TRANSFORMER, LINE FILTER			
		<VARISTOR>			
VDR461	1-803-830-11	VARISTOR (ERZV14D621)			

REF NO.	PART NO.	DESCRIPTION	REMARK
**********			
		ACCESSORIES AND PACKING MATERIALS	
		**********	
	1-754-114-11	ANTENNA, TELESCOPIC	
	1-417-151-22	TRANSFORMER, ANTENNA MATCHING	
	1-417-151-22	MATCHING TRANSFORMER, ANTENNA	
	3-701-910-00	SCREW, SPECIAL (DIA. 3.8X20)	
*	4-062-162-11	BAG, PROTECTION	
*	4-082-706-01	INDIVIDUAL CARTON	
*	4-082-707-01	CUSHION(UPPER)(ASSY)	
*	4-082-708-01	CUSHION(LOWER)(ASSY)	
	4-082-385-12	MANUAL, INSTRUCTION	
	4-392-003-51	BAND, HOLD	
**********			

REF NO.	PART NO.	DESCRIPTION	REMARK
		BATTERY COVER REMOTE COMMANDER	
		**********	
	1-418-163-51	REMOTE COMMANDER (RM-952)	
	9-939-697-01	BATTERY COVER REMOTE COMMANDER	

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Visual Products

9-872-283-01

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